

American Aviation

The Independent Voice of American Aeronautics

MAY 1, 1943

A New Labor Phase

Fortnightly Review

AS A RESULT of greatly increased employment arising from war work, the airlines are beginning to face a new set of labor problems. Perhaps now is the time to lay the ground-work for labor relations in the

post-war as one means of avoiding burdensome and costly labor turbulence experienced in some other industries.

In its 17-odd years of existence the air transport industry has been blessed with employee-employer relationships enjoyed only infrequently in other fields. Being a new industry it has attracted an exceptionally high class type of personnel whose enthusiasm for this new mode of transportation has surpassed the interests of routine salaried employment. Air transportation has been a fraternity, a cause and a crusade. Opportunities for advancement have been numerous. Despite the occasional flurries with the airline pilots, these have been, actually, family affairs with virtually no relationship to the vicious type of labor embroilment experienced in some industries.

There have been indications that the type of labor union agitator who is friend of neither labor nor management has been trying to horn into the air transport field and it would be a catastrophe should the airlines and their employees become victimized by this type of professional leech. Naturally the efforts of the "outsiders" are directed at new employees. Fortunately they have not met with any signal success.

Whatever seeds of labor turbulence have been sown come as a direct result of abnormal war-time expansion. In a sense, therefore, since the airlines have

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Head National Council

Glenn L. Martin, left, president of the newly-formed National Aircraft War Production Council, and LaMotte T. Cohu, vice president, are shown here with Donald Douglas, president of Douglas Aircraft, one of the member companies.

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Late Bulletins

More Airline Planes Seen

Although all parties concerned are speaking cautiously on the subject, hopes are rising that more transports may soon be available for the commercial airlines. Whether these will be strictly cargo or standard transports has not yet been determined.

Discusses Conversion

The aircraft and shipbuilding industries typify the most serious postwar conversion problems, according to an analysis of postwar economic problems just released by S. Morris Livingstone, head of the economic research division of the Dept. of Commerce.

Speed Without Propellers:

Trend of The News

While the United States steadily builds up its lead over the rest of the aeronautical world in amazing development and production of air-cooled and liquid-cooled engines, earliest signs of what may be a long-term revolution in power plants are multiplying here and abroad. Al-

though the popular conception of radical changes in aircraft hinges around such ideas as the aircraft Diesel, the flying wing, or six-engined bombers, another idea seems to offer even greater possibilities. Slowly, without publicity, the lowly rocket plane idea is climbing up from the comic strip level to command the careful study of more and more of the world's leading aeronautical students. There are those who say jet propulsion has already arrived, and that it is here to stay, in some form. A concentrated and exhaustive research program is inevitable both here and in Great Britain.

There is some concern that Britain may be ahead of us in such studies already. Others who are in the inner councils of our own nation's work say no. At any rate, big news is brewing, but not imminent. As long as the war continues, this subject will be on the secret list.

What will jet propulsion mean? Its champions say it will open still another new era in aviation. It will bring about sweeping changes in aircraft design. Because the power unit will be lighter, with a power ratio far better than anything we know today, it will be completely enclosed in the body of the ship ("fuselages" as such may no longer exist), permitting great improvement in aerodynamic efficiency. Higher speed and altitude ratings will follow. Eliminating propellers will lighten the landing gear. Safety fuels which won't burn or explode can be used. Does this mean the reciprocating engine is on the way out? None who see today's production could agree. Nevertheless, in some authoritative fields it is the feeling that a greater vista is offered for the next 25 years by jet propulsion than by any powerplant in use today.

Idle Army Transports: with the domestic airlines pleading for only 10 or 15 more ships to handle increased air mail, the Army Air Forces are being criticized in business and Congressional circles for letting

(Turn to page 6)

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American Aviation

Vol. 6, No. 23

May 1, 1943

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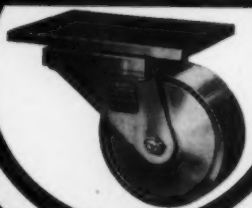
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As evening comes on—it will be daylight of tomorrow out in the South Pacific . . . and it'll be dark in Africa and Europe.

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(Continued from page 1)

DC-3s and even newer models sit idle at air bases all over the country. It is common practice to reserve a big ship for the exclusive use of one or two high officers at a base, who may not fly five hours a week. Even the planes in regular service on cargo runs both in this country and abroad often do not fly as many hours in a month as they formerly flew on the airlines in a week. Rep. Jennings Randolph, wide-awake air-minded Congressman from West Virginia, just back from a tour of some 40 airports in the south, is spearheading House studies of the whole plane utilization problem. Military officers and others who know the performance figures admit the situation.

Big Crop of New Planes: Although details are military secrets, the West Coast, which claims it is producing more than 70% by weight of the nation's planes, now has many new models in the air. The two-year period between design and production is about to produce its harvest of radically designed fighters, night fighters and cargo planes. In most cases you won't read about them until after they have met the enemy and have been downed in Axis territory, subject to the Luftwaffe's thorough-going inspections.

Truman Watching AAF Accidents: The aviation sub-committee of the Senate's Truman Committee is showing interest in AAF training and operational air accidents and has already sent two investigators to Wright Field to study causes and frequency of engine failures. It is learned reliably that the group is also concentrating its attention on two types of combat aircraft, a high-speed medium bomber and an Eastern-built fighter of unconventional design. The Committee now is in possession of certain Army records on crashes and "may or may

not" make a public statement after its coming report on aircraft production is made public.

Hughes Guards Plant: Howard Hughes far has refused to allow Army Air Force officers to inspect his current work on what may prove an important project in high speed aviation, West Coast people relate. Hughes wants to make tests and adjustments in his own way before letting Wright Field Materiel officers see the result. Since he poured his own money into it, he gets away with his independence.

Wooden Planes: Unpublicized testimony by an assistant chief of the Department of Agriculture Forest Service brings out the fact that this country is trying to turn out an all-wood combat plane similar to England's successful Mosquito bomber as soon as possible. He also reveals that in addition to its famous bomber, Britain has 40 or more models with important wood construction. The Forest Products Laboratory at Madison, Wis., now working almost 50% on various aviation problems, is being used nearly to capacity. Further work on laminated and compregnated paper, originally developed by McDonnell Aircraft Corp., points to its future importance as a covering for wings and fuselage in place of sheet aluminum. The paper is not only stronger and stiffer, but because of its molding characteristics it requires much less tailoring and riveting. "Everything is in favor of this material being considerably cheaper" than metal, it was said.

Fireproof Flying Suits: Private reports from Britain describe tests of a chemical which may have important results in military and commercial flying. Chemists have been at work since 1940. A solution is sprayed over boots, leather togs, gabardine flying suits and other equipment which thereafter have proved fire-resistant. It is understood the British government is taking an active interest in the project.

Those Perplexing Box Scores: The astounding "box scores" which have been coming in from the battle skies wherever our Army and Navy airmen have struck at Axis aviation or surface forces is causing extreme discomfort among the hard-bitten tank and battleship proponents in Washington, who have been refusing to give aviation its share of credit in the war to date. It's interesting to record in this connection that a Navy-sponsored "educational" movie has been tied to the end of a national newsreel release and has been appearing in hundreds of theaters. It is titled "The Battleship Comes Back," but shows several anti-aircraft guns being tested on dry land near a factory, with not an enemy plane in sight.

Nevertheless, Gen. MacArthur's gratifying statement on airpower's superiority to surface power in his area is considered a strong portent of the future. Recent astonishing weapons which have been devised to destroy or disable tanks, including the now-publicized "bazooka," have led some airmen here to make the flat assertion, that as far as a long term view is concerned "the tank is washed up." Close observers here are convinced an important shift to airpower is in process, but the public is not being informed of it by any high official and probably won't be, except in piecemeal dribbles which do not reveal the sweeping nature of the changeover.

A close study of recent public statements by men like Nelson, Stimson, Knox, Davis, and others reveals acceptance of aviation in a new light by this government. One estimate heard frequently in Washington is that the Allies already have a 2 to 1 superiority over the Axis in number of planes, taking in all the battle fronts. Even if the box scores drop by 50% to 100% our plane losses will still be lower than pre-war attrition estimates.

Robert H. Wood.



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THE AIRLINES OF THE UNITED STATES

AIR TRANSPORT GETS THERE FIRST... PASSENGERS... MAIL... AIR EXPRESS

Editorial

(Continued from page 1)

undertaken gigantic tasks for the war effort there is an obligation on the part of the government to keep air transport management free from war-time labor troubles.

Aside from war expansion, however, the air transport industry is undergoing an inevitable change in labor problems simply because it is growing older, and these new problems deserve close attention by management. The postwar industry will be far greater than the closely-knit group that pioneered the airline network prior to the war. No longer will it always be possible for everyone on the line to know his top boss by sight or call him by his first name. Air transportation won't be quite the type of romantic and adventurous calling it was in pre-war days. It will be a fully accepted means of transportation by the younger generation who will be the job-seekers of tomorrow.

The Jack and Heintz method of interweaving paternalism with fraternalism makes a great show-case for magazine features, but it is hardly the pattern for post-war employee-employer relations in general. It is one thing to have ready-made orders running into the millions of dollars, with no direct sales costs or development of sales territories, and quite another to develop a competitive market. Labor relations must be balanced soundly with corporate practices.

In this connection the employee-employer relationship in United Air Lines is deserving of careful attention throughout the industry, for it would appear to approximate a sensible corporate program fair to management and employees alike. No air transport company has given as much thought and time to employee benefits as United, and probably no airline president devotes as much of his personal time to individual employee cases as does its president, W. A. Patterson.

Such things as group insurance, a pension plan, medical service, credit union, suggestion conferences and other employee benefits are the tangible features of United's program and can be adopted generally by any corporation interested in looking after the welfare of its employees. It is a program based on a liberal policy of recognizing certain definite employee rights and giving them privileges to which they are entitled in fair and open dealings.

Some of the United privileges include insurance protection for straight life and disability compensation, and group accident insurance available on a voluntary basis to employees and their dependents. United was the first airline to give employees the benefits of a pension plan. Its medical department with two well-equipped branches is an additional progressive move designed to protect the health of the personnel.

The United program is mentioned primarily because it is a symbol of the type of corporate activity that will be generally expected throughout industry in the post-war. A forward-looking employee-employer program is a good investment for any industry, but more important, it probably will be a requisite to avoiding costly labor trouble later on. In this new phase of labor problems, a symptom of the growing-up of the airlines, management will have to give increasing attention to soundly-balanced benefits to employees and therein may lie the road to tranquil labor relations for the future.

Drafting of Instructors

IF AN individual seeks to propagandize against the war effort, or if he makes an overt act hindering war production, he is a saboteur and no time is lost in treating him accordingly. Yet we find numerous vital war enterprises being hindered far more seriously than if they were subject to direct propaganda efforts, and little if nothing is being done to keep them at peak.

Take the matter of the draft threat to instructors in schools training Army Air Force cadets. Of all war efforts certainly the training of Army pilots stands at the top of the list along with manufacture of combat airplanes. But the No. 1 worry of Army contract schools is the retention of instructors against the inroads, and constant threats, by local draft boards.

The number of available civilian instructors is definitely limited. Physical and other requirements are very high. They can't be replaced by 4-F's or women. Quite naturally the majority are within the draft age limits, else they wouldn't be good instructors. Many are married but not so many have dependents other than wives, present war-time living conditions for instructors not being very conducive to well-entrenched family life. In most of the schools over 50% are eligible for immediate induction and the battles with local draft boards are occupying valuable time.

Admitting that in a democracy local board units must be given control of the draft, it seems to us that certain highly specialized workers, such as instructors of Army cadets, should be set apart without the unnecessary harassment of draft board red tape. Factory workers for the most part can be replaced. Really indispensable people are relatively few. But there is no reserve of civilian instructors and the drafting of these men, and the constant trouble caused by draft boards, present a critical situation demanding action in Washington. The Japs took the Philippines for the lack of a few hundred good U. S. airplanes. Are we still going to blunder along with airpower as though it were an indifferent appendage to the war?

Global Air Time

OUR recent editorial advocating the adoption of the 24-hour clock by domestic airlines brought unexpectedly rapid results. Western Air Lines advised us on April 16 that the company gave considerable study to the suggestion and decided to adopt the system effective April 20. Western has gone us one further, however, by describing it as *global clock* and *global air time*, a description which seems to us to be a stroke of genius. Hereafter we shall refer to the 24-hour clock as the global clock. We can already hear the radio time announcers referring to "Seventeen thirty global air time."

Now that Western has courageously broken the ice it can be expected that other airlines will follow suit. In a large measure the adoption of the 24-hour system is inevitable and perhaps now is a propitious time to launch a general transfer for the entire industry.

WAYNE W. PARRISH

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XUM



SAFETY

*will be the
Skyway
to Success*

AS the map of the future takes form, its geography overleaps national boundaries, interlinks oceans, continents, hemispheres. For its substance is the universal air, through which commerce and transportation can exist on a global scale.

Among the many minds turning to this conception are those of the greatest vision, enterprise, resources, here and abroad. Such men know that, to play a dominant part in the skyways of tomorrow, an airline must constantly improve and expand its safety devices.

Through the new miracle of electronics, safety in the air can leap as far ahead in one stride as it has pro-

gressed in former decades. With a sureness beyond human capacity, the electronic devices developed for victory in war already provide new methods of aircraft control, can make possible a degree of safety in flight never before imagined.

Because Hazeltine Electronics Corporation is taking a leading part in these unparalleled developments, far-seeing airline executives can turn now to this organization for the electronic techniques and apparatus essential to future success. By entrusting this phase of post-war plans to Hazeltine today, precious months can be saved in launching peace-time operations.

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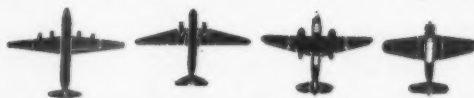


MIAMI TO CALCUTTA WITH 4½ TONS EXCESS CARGO

To fly a Douglas C-47 Skytrain twice across one half the world with 4½ tons excess cargo "couldn't be done" by peacetime standards. Yet it *was* done under war conditions by Capt. Harold Sweet, Pan American Airways pilot in two trips from Miami to Calcutta, India on missions for China National Aviation Corp. These were routine flights, typical of the incredible daily accomplishments with Douglas war transports throughout the world. Only by building airplanes to the highest conceivable safety standards are such feats possible. Many more such Douglas stories will come out of this war, pointing up future peacetime aircraft performance beyond today's fondest hopes.

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WAR WINGS THAT POINT UP THE FUTURE



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C-53 "Skytrooper" A-20 "Havoc" A-24 "Dauntless"

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Every minute tonight, some squadron of young U.S. pilots will lift their wings from a darkened field. They're starting out with grim confidence.

It will help them if we at home get clear on where the stupendous U.S. air program now stands—and on the place where each of us can fit into that plan and help make it go forward faster.

As aircraft designers and engineers, the "Northrop group" is working night and day under that plan. Northrop submits here some facts on what's going on.

What kind of planes is the U.S. building?
This is a new kind of air war. In it the old-style "all-purpose" fighting plane isn't good enough. Today, one new plane may be a champ at what

are called "low altitudes". But *because* it's so good close to the ground it isn't good enough 5 miles up in the sky.

The way to be best near the ground, and up high, and every place in between, is to have many different kinds of pursuit planes. That's what America is creating day and night—ALL kinds—including improvements on fighters already battle famous and deadly new ones you've not yet heard about. And plenty of each kind.

It's the same with bombers. In some areas we need bombers that will carry "block-busters" thousands of miles and come back home safe. In other areas another kind is better—

bombers that will carry still bigger loads but have less flying range.

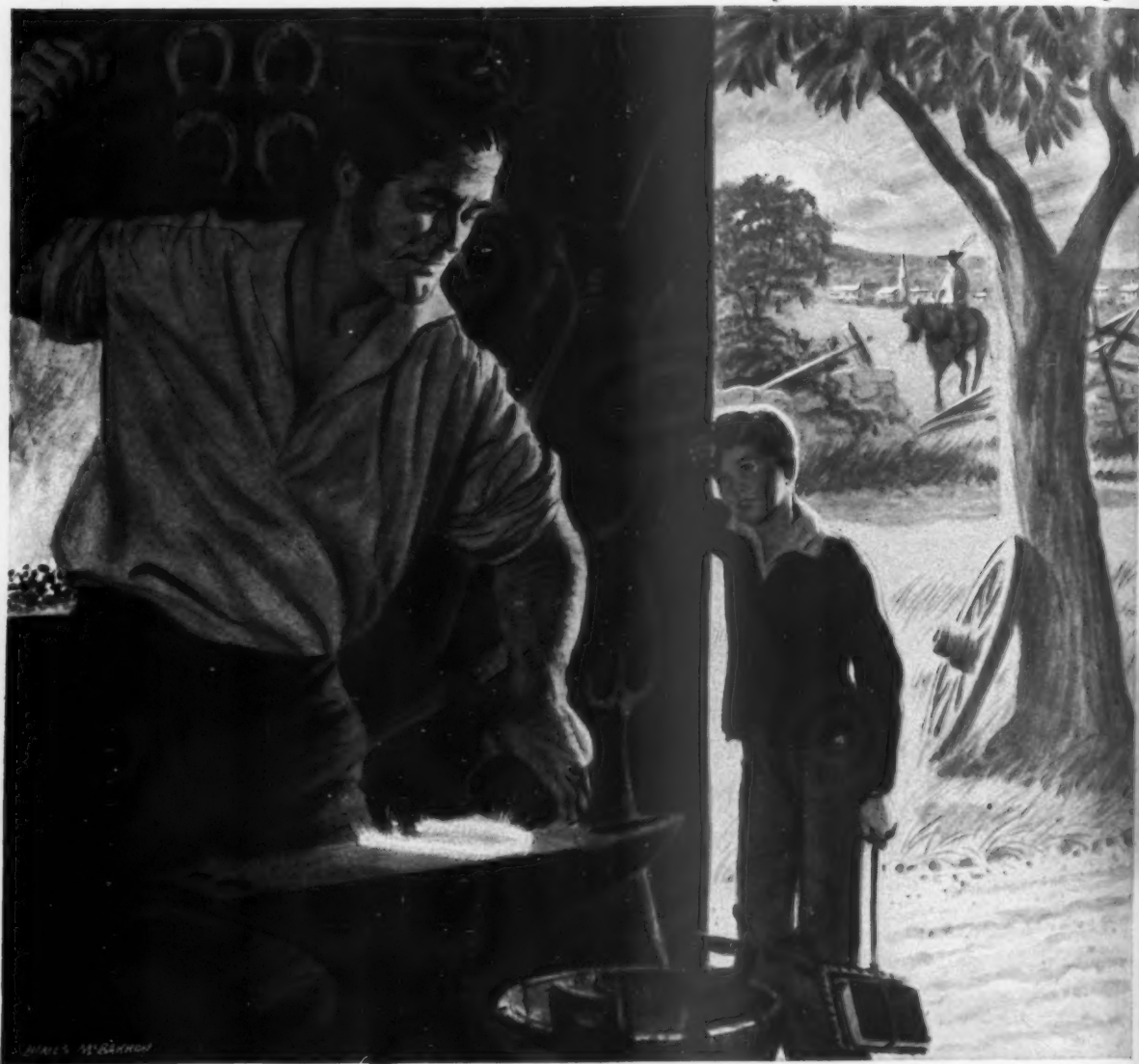
So here again the answer is many kinds of bombers. That is what the U.S.A. is building—and at a speed no nation ever dreamed of before.

What can a person do to help? *Every rivet in an airplane costs about 3 cents to drive into place. There are 600,000 rivets in one four-motored bomber. So, when you buy an \$18.75 war bond you drive 625 rivets. Maybe that's enough rivets to hold a wing in place after a Jap shell has torn it, enough to get some boys safe back to their field after a night in a war-torn sky.*



NORTHROP AIRCRAFT, Inc.

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"The smith, a mighty man is he"

The tradition of Longfellow's immortal Village Blacksmith, rugged, honest, determined to finish a task once begun, lives on in the sturdy spirit that has swept this country forward through the years. Forward . . . and now upward, to the era of flight.

Flashing sparks have sprung from the anvil of democracy since the shadow of the first plane brushed the sandy stretches of Kitty Hawk. Twice since then this nation has been drawn into world-wide

conflict. And today, American determination to complete a task once started is answering the onslaught of the war lords whose aim is slavery for all mankind.

In this, our greatest war, the tradition of mighty men and burning deeds meets its sternest challenge in the air. Oppressed peoples everywhere look skyward for the final victory over tyranny and brutality. And aviation's answer, tempered in the flaming forge of conflict, carries more than the pledge of liberation. Here, also, is the

promise of a bright new tapestry of life and brotherhood, its pattern enriched with the silver paths of swift planes moving over the waiting earth.

Right now, we of Chicago and Southern Air Lines fly first in service of our government and the war that must be won. But we try, as did the Village Blacksmith, each day to see some task begin . . . each evening some task close . . . that will further the contribution of air transport to the better world to come.

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AWPC to Aid U. S.-Industry Cooperation

National Council Will Provide One Agency to Handle Problems

By CLIFFORD GUEST

CREATING for the first time on an industry-wide basis a vehicle which goes beyond the realm of a trade association and sparks the efforts of industry and government at a new unified pitch for the production of aircraft, the National Aircraft War Production Council, Inc., was launched last fortnight.

The aircraft industry's answer—unprecedented in U. S. business—to the urgent need of the war effort for a single agency through which to channel quickly and efficiently all urgent problems in the wide-spread ramifications of plane building, the national council was pressed into war-gear activity even before it could establish offices.

Immediate interest in its setup and functions was shown by the British Air Ministry, highlighting the significance attached to this phase of aircraft industry leadership in the U. S.

Made up of the Aircraft War Production Councils of the East and West Coasts, which retain their identity, the new national organization will provide constant liaison between these two regional groups, as well as between the industry and the government war agencies.

The top men of 16 major aircraft companies on the two coasts comprise its board of directors. As its first general manager, Frank Ford Russell, president of National Aviation Corp., represents another tie-in between east and west coasts and familiarity with the problems of both as a director of Bell Aircraft Corp. and of Lockheed Aircraft Corp. These directorships he is relinquishing to give his full time to the new national office.

General Manager Russell, friendly but tough, analytical and precise, noted throughout the industry for his knowledge of a dozen or more factory floors, will be the voice of the aircraft manufacturers. His office will be the clearing house through which ideas, information, know-how and "show-how" will be funneled from industry to government and vice versa. The council has been termed a "factual filter," but it also promises to be the springboard for action on all problems arising in the future.

Importance of the role it will fill was emphasized by the speed with which it

was called upon to begin taking a hand in over-all plans shaping up in government agencies.

Even before the incorporation papers had been filed, Charles E. Wilson, vice chairman of the War Production Board and chairman of the Aircraft Production Board, called upon Russell for a comprehensive outline of the aircraft industry's views on the incentive pay plan, then being debated among WPB heads. It was the first time that WPB could turn to one central spokesman for aid in determination of such an important policy.

War Manpower Commission's National Roster of Scientific and Specialized Personnel immediately called upon the aircraft council for a joint report on needs of the industry for engineers—a request typical of the coordination which can be expected in problems involving key personnel.

The wide range of other activities of the national council is beginning to take shape. The office will be completely organized shortly with a small staff. Washington-wise Dick Palmer, manager since the first of the year of the West Coast Council's Washington office, will be Russell's assistant. Palmer was elected secretary-treasurer of the national council.

Formation of the national council has been in the air since January when WPB's Wilson, addressing a dinner of aircraft manufacturers in Los Angeles and describing to them some of WPB's involved problems, said:

"Some aircraft company president in this room is going to have to come to Washington and help me out."

The West Coast council, formed on April 6, 1942, and the East Coast council which was formed last September, had already set a remarkably successful pattern. The industry's answer was:

"Not one president of one company—but a council of all of us. As manager of the council, one spokesman for the in-

dustry, and a man to get action when it is needed."

Last fortnight, heads of several of the eastern companies met in Los Angeles with presidents of the west coast companies, military authorities and government representatives for a week of conferences during which there was an extensive interchange of information and operating data and the national council emerged full-fledged.

Complete satisfaction was evident on the part of the government. Wilson promptly notified the council he was happy with this development in the industry and regarded it as the answer to his major problem. Undersecretary of War Robert P. Patterson telegraphed: "I am sure the National Council will be of great assistance to the Army aircraft program," and stated he looked forward to helpful co-operation. Admiral McCain wired: "You have my best wishes for a successful organization and I am certain it will be an outstanding asset in our war effort." Rear Admiral R. A. Davison, assistant chief of the Naval Bureau of Aeronautics, sat in on the conferences and gave the council his full approval.

Chosen as its top executive personnel, in addition to Russell, were: Glenn L. Martin, president of the Glenn L. Martin Co., as president; LaMotte T. Cohu, chairman of the board of Northrop, vice president; Richard C. Palmer, secretary-treasurer. Directors are Martin and Cohu; J. Carlton Ward, Jr., president of Fairchild Engine & Airplane Corp.; Lawrence D. Bell, president of Bell Aircraft Corp.; Robert E. Gross, president of Lockheed Aircraft Corp., and T. Claude Ryan, president of Ryan Aeronautical Co.

Embraced in the national organization, through the membership of the two regional councils, are Aviation Corp., Bell, Brewster, Curtiss-Wright, Eastern Aircraft Division of General Motors, Fairchild, Martin, Republic, Boeing, Consolidated

(Turn to page 17)



Setting Up National Council:

Described as the most notable group of top aviation executives ever assembled at one time, photograph shows officers, directors, Army and Navy associates of the new National Aircraft War Production Council, Inc., during Los Angeles conferences at which the Council was completed last fortnight. Left to right seated are: Frank F. Russell, J. Carlton Ward, Jr., Glenn L. Martin, LaMotte T. Cohu, T. Claude Ryan, Lawrence D. Bell. Left to right standing: Dr. A. E. Lombard, Col. Nelson Talbott, L. C. Goad, Robert E. Gross, Harry Woodhead, J. H. Kindelberger, Guy W. Vaughan, Courtlandt S. Gross, Ralph S. Damon, Col. Donald F. Stace, Capt. Lucian Grant and I. M. Laddon. Donald W. Douglas was called from the conference room shortly before this picture was taken.

MacArthur's Call for Planes Gives Airpower New Backing

Demanding an immediate change in U.S. strategy to make aerial attack the key offense against the Japanese, Gen Douglas MacArthur, commander of the Southwest Pacific area, swung to advocacy of air power in mid-April with such finality that military men and aircraft industry observers are watching closely for its ultimate effect in the top-policy section of the War Department.

The battle of the Western Pacific will be won or lost by the proper application of air and ground forces, Gen. MacArthur warned, in an urgent demand for more and more planes.

"If we lose the air," he said, "naval forces cannot save us. The first line of Allied defense is our bomber line."

In this declaration he was backed up by other military leaders in the Southwest Pacific, and by Australian officials.

To these demands, Secretary of War Henry L. Stimson gave the brief reply and promise:

"The needs of the Southwest Pacific are being kept constantly in mind and there will be a constantly increasing flow of military supplies, particularly aircraft, to that theater."

Specific information as to the shape or trend this promise would take was still lacking at month's end, but the all-out commitment of Gen. MacArthur to air power was seen as removing the last vestige of doubt that this is primarily an air war.

Warning that the Japanese are getting set for a struggle to dominate the skies he declared that "control of the sea lanes to Australia no longer depends solely, or perhaps even primarily, upon naval power, but upon air power operating from land bases held by ground troops, all supported by naval power."

"If the enemy wins control of the air," he said, "his naval units can at once bring forward convoys of ground forces to continue his attack to the southward to a limit imposed only by the range of his land-based air support."

"A primary threat to Australia does not . . . require a great initial local concentration of naval striking power. It requires rather a sufficient concentration of land-based aviation."

"As a matter of fact, Japanese naval forces in great strength, although beyond our bomber range, are within easy striking distance of Australia."

"The vital factors, therefore, in the Southwest Pacific, with its littoral of countless island groups and innumerable archipelagic reaches, are the air forces to strike and the ground forces to conquer and hold."

"The Allied naval forces can be counted upon to play their own magnificent part, but the battle of the Western Pacific will be won or lost by the proper application of the air-ground team."

Supplementing Gen. MacArthur's contention came a pointed assertion on air initiative by General Sir Thomas Blamey, Australian commander of Allied ground forces, who said: "He (the Jap) is now building up really big forces in this area. He has now 200,000 men and a proportionate number of airplanes. He is now

attempting to obtain control of the air preparatory to taking the initiative."

Lieut. Gen. George C. Kenney, commander of air forces in the Southwest Pacific urged a five-to-one ratio of Allied planes. Reaching Australia after a mission to Washington, he emphasized that U. S. and Australian airmen are not only outnumbered but concede a strong advantage to the enemy in plane replacements.

"When we shoot down a plane," said Lieut. Gen. Kenney, "the Jap replaces it in a few days. When he shoots down one of ours, the replacement has to come a long way and it takes time. We are forced to shoot down four or five to one to keep the score straight. That's a pretty heavy burden on the boys. I'd like to tell them they could shoot down one for one and still be all right."

In Washington, Dr. Herbert V. Evatt, Australian Minister for External Affairs, added to the commentary on disparity of air forces by pointing out that Port Moresby had experienced its 106th raid staged by 100 Japanese planes, and that the heaviest attack yet mustered against Rabaul by Allied forces of the Southwest Pacific area had consisted of only 37 aircraft.

Prime Minister John Curtin of Australia joined in the general warning of new offensives to come from the Japanese, saying: "The Japanese have no other theater of action than the Southwest Pacific at present, and it would be sheer illusion to assume that recent reverses fundamentally changed Japanese war plans. What they have done is to cause Japan to realize her attacks need to be on a heavier scale."

During a week of such repeated demands for more airpower, the Naval view expressed by Secretary of the Navy Frank Knox was this: "You must remember that an attack on Australia must

Score: 384 to 54

A total of 384 Japanese planes were shot down by United States Army Air Forces planes during January, February and March, the War Department announced Apr. 2. Fifty-four Army planes were lost, the report stated. The tabulation did not include enemy aircraft probably destroyed, those damaged in combat which may have been able to return to base, those shot down by anti-aircraft fire, or those which may have been lost because of mechanical failure. It included only those aircraft credited to Army Air Forces personnel as certain victories.

be accompanied by a tremendous force, and there is no indication of such concentration. The only way the Japanese can get to Australia is by ship."

Meanwhile, dispatches from Australia said that the Japanese air forces have built up a higher quality level by replacing a considerable number of obsolescent planes used in the early months of the war with more up-to-date ships although no new types have been introduced since 1942.

American forces have captured "almost intact" several modified versions of the Jap Zero, known by airmen as the "Hap" which has a new 900-horse-power motor capable of pulling it considerably faster than the 350-mile top of the Zero. The Hap has the same armament as the Zero, and, like it, has little armor plate, is extremely maneuverable and can fight up to 35,000 feet.

Practically all Japanese pursuit planes are said to carry belly fuel tanks, giving them a range of 1,500 miles. Efforts to develop self-sealing fuel tanks apparently have not been successful.

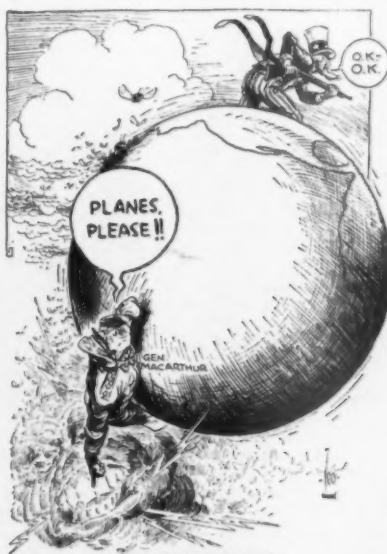
Dispatches said the Japanese two-motored medium bomber, which looks about like the B-26, has a speed of 250 miles, a range of 2,000 miles with a medium bomb load, and an altitude of about 20,000 feet. It has two 1,400-horse-power air-cooled motors, but no armor protection. The Japanese navy is said to have developed a lighter bomber with a speed almost equal to that of modern fighters.

Japs Attack Fortress With Bombs; Miss Mark

Eight Japanese "Hap" planes recently launched a bombing attack on an American B-17 Flying Fortress on a mission north of Guadalcanal, dropping between 20 and 30 bombs, the War Dept. announced Apr. 11. Bombing of planes in flight was first practiced by the Germans.

"The deflection was off and bombs exploded ahead and behind the B-17," said the War Dept. report. "As one Hap expended its bombs, another would assume its position. No hits were scored, although one wing passed through the white smoke resulting from a burst."

The B-17 escaped in a cloud bank after being subjected to attacks by "at least seven more Haps" and the damaged plane was landed at Henderson Field, Guadalcanal, the report concluded. The "Hap" is a modified and improved version of the Zero.



Washington Times-Herald

April Production Almost 7,000, Plane Priorities in 3rd Place

WPB Chairman Donald M. Nelson gave the first figures on April aircraft production when he told the American Newspaper Publishers Association in New York recently that almost 7,000 planes had been produced.

Nelson said: "Certainly, a year ago if anybody could have told us that we could build 7,000 airplanes in one month, we would have told them they didn't know what they were talking about. We will do it, probably this month. We will come close to it this month. Next month we will build even more, and the next month we will build even more; until we get up to just as large a production as we feel we need, no matter how many we need."

Production for March has been estimated at 6,200 planes with a rapidly ascending chart to be climaxed next December with twice that output. The increases are coming in bombers which have already been stepped up. Undersecretary of War Patterson publicly asserted that during March 500 heavy bombers were built. Considering man-hours and materials involved in building a four motored bomber this is a remarkable record.

However, despite this signal success in aircraft it is becoming evident in Washington that airplanes no longer hold the top priority position among the five "must" programs. Most observers place 100 octane gas and rubber ahead of aircraft while a few maintain escort vessels are receiving greater quantities of scarce materials for their program.

The Army was short of combat gasoline last month, Mr. Patterson revealed. Planes were actually grounded for lack of gas. The situation this month is worse. For the remainder of the year, the amounts needed to fill the Army's needs and those of our Allies—for we now fuel almost the entire United Nations' air fleet—will rise astronomically. As things now stand, those needs will not be met, he said.

'Wholly Unfounded'

"The idea that equipping of the Army is nearing completion is wholly unfounded," Patterson told newsmen. "The job of furnishing our armed forces with their requirements is a job that will grow until the peace conference. Any notion that the work of equipping the armed forces is nearly done, and that we can resume normal peacetime production in place of production for the Army and Navy—people who believe that don't understand war."

His remarks were prompted by a question whether the country was not accumulating a large number of airplane motors. "Thank God we have a satisfactory amount of engines, but none too many," he replied.

Meanwhile changes are being wrought at the War Production Board civilian agency for producing war materials. Executive Vice Chairman Charles E. Wilson signed a sweeping Administrative Order on April 23 giving J. A. Krug, Program Vice Chairman, virtual control of production and scheduling in the country. Shortly after Ferdinand Eberstadt's dis-

missal in February Nelson turned all production over to Wilson retaining for himself purely an administrative position as head of WPB. The move was supposed to spare Wilson the intricacies of Washington politics and leave his full time to the promotion of added production in all fields and particularly among the five needed "must" programs.

Krug, under his new powers, scans and approves all programs, allocates materials through the Controlled Material Plan Division, and acts as chairman of the Requirements Committee. This gives him a check on the original broad planning for needs, a further check when the claimant agencies present their requests to the Requirements Committee and finally approved materials are moved at his orders into the field.

Among the divisions transferred to Krug's office are the Controlled Materials Plan Division, the Appeals Board, Stockpiling and Transportation Division and Production Scheduling Bureau.

Boeschstein Chief

Harold Boeschstein, Director of the Controlled Materials Plan Division, becomes chief of the Production Controls Bureau. Mr. Boeschstein is known to aviation experts since his trip to the West Coast factories and his recent Detroit and Washington meetings with the Automotive Council for War Production.

Capable observers think Wilson's move may indicate that he is going to do administrative work while Krug produces. Wilson's move to clear himself of detail has confirmed for many the often rumored removal of Nelson.

President Roosevelt's move adding WMC Chairman McNutt, ODT Director Eastman and Petroleum Administrator for War Ickes to the War Production Board has Washington wondering if it indicates a move to strengthen the civilian supply sections or to unify the civilian agencies of war production.

General Administrative Order No. 2-93 reads in part: The Program Vice Chairman, acting for the Executive Vice Chairman, shall:

"1. Review and approve proposed military, foreign and civilian programs to en-



Enemy Sighted:

This is what they look like, say the British. An RAF photographer took this picture of a German FW58 twin-engine trainer over Aachen.

Concentration

In one day, United States Army planes flew 1,399 sorties against Field Marshal Rommel's troops, fleeing from the Mareth line in Tunisia, the War Department recently announced. The concentrated attacks were carried out, despite hazardous weather, on March 30. The 12th Air Force, based in North Africa, and the 9th Air Force, based in the Western Desert, attacked simultaneously, the report stated.

sure that approved programs do not conflict and are consistent with maximum productive possibilities; establish the relative urgency of programs; and formulate and issue program determinations to the operating officials of the WPB for the effectuation of approved programs.

"2. Identify limitations in the supply of resources that restrict the scope of the total production program; determine, by the review of programs, the amounts by which the supply of such resources should be increased; and allocate resources for facility expansions . . .

"3. Advise with representatives of the U. S. on the Combined Raw Materials Board and the Combined Production and Resources Board with regard to contemplated recommendations by these Boards;

"4. . . .

"5. Certify to other agencies schedules to govern priorities in transportation;

"6. . . .

"7. Serve as the principal point of general contact in the relations of the WPB with the Office of Lend-Lease Administration, the BEW, ODT, the Solid Fuels Coordinator, the PAW, and the Dept. of Agriculture and develop and establish basic policies and procedures to govern these inter-agency relations;

"8. After consultation with the appropriate operating officials of the WPB and Claimant Agencies, formulate and determine policies, plans and general methods for the allocation, distribution and redistribution of resources, for the scheduling of the production of delivery of products and for the control of inventories. The Controlled Materials Division and the Operations Vice Chairman shall formulate operating methods and operating procedures relating to distribution, redistribution, scheduling and inventory control and such operating methods and operating procedures shall be subject to review, coordination, and approval by the Program Vice Chairman prior to placing in operation. The provisions of Administrative Order No. 32 relating to the issuance of CMP material shall remain in effect . . .

"9. Clear and approve for issuance proposed regulations and L.M.P. and other like orders issued under priorities statute in accordance with General Administrative Orders 2-85 and 2-88;

"10. Determine or provide for the determination of appeals from orders;

"11. . . .

"12. . . .

"13. . . ."

Gen. Royce Shifts

Maj. Gen. Ralph Royce has assumed command of the 1st Air Force, headquarters at Mitchell Field, Long Island, announced on Apr. 20. Gen. Royce has been commander of the Southeast Army Air Forces Training Center.

NATIONAL AIRCRAFT WAR PRODUCTION COUNCIL



Background of National Council Officials

When East and West coast aircraft manufacturers went into joint conference to organize the National Aircraft War Production Council, they constituted the most notable group of aircraft executives ever assembled at one time.

Seventeen heads of U. S. aircraft manufacturing companies comprise the directorship and management as the council sets a new pace in industry-government relations, tackling chiefly the problems of all-out production, in keeping with the global aspects of the war in which aircraft has a predominant role.

American Aviation presents herewith brief personality and background sketches of these men:

FRANK FORD RUSSELL

President, National Aviation Corp.

Frank Russell, graduating from Yale in 1926, put in a year in the bond business and then gravitated naturally into aviation. He joined National Aviation Corp. in 1928, a few months after its organization, and four years ago became its president. The company has financed, underwritten and, in some cases, helped to manage a large number of major aircraft, parts and research companies including Lockheed, Bell, Chandler-Evans Co., Lawrence Engineering & Research Corp., and Vidal Research Corp.

Russell is now on leave of absence from National Aviation and is giving up offices or directorships in a dozen different aircraft and parts companies to devote full time to co-

ordinating the industry for maximum war production.

LAWRENCE D. BELL

President, Bell Aircraft Corp.

His career reenacts the traditional American story of the rise of "captains of industry." He got the aviation "bug" as a student at Polytechnic high school, Santa Monica, Cal., while working simultaneously as mechanic for his brother Grover Bell and Lincoln Beachey.

At 19 he was working in the Glenn L. Martin airplane factory, soon became general manager and directed development of the Martin twin-motored bomber during World War I. In 1929 he joined Consolidated Aircraft Co., then in Buffalo, N. Y., and became its vice president and general manager, resigning in 1935 when the company moved to California.

Bell Aircraft Corp. was then formed, and under "Larry" Bell's direction, the company has grown from 60 employees in 1935 to many thousands.

RALPH S. DAMON

President, Republic Aviation Corp.

A graduate of Harvard and M.I.T., Damon first put his hands into the aircraft industry as a millwright in 1920 with G. Elias and Bros. In 1922 he worked as a mathematician for Curtiss-Wright Corp. Three years later he was named Long Island plant superintendent, then general manager of St. Louis and Buffalo plants.

In 1936 he became vice president in charge of operations for American Airlines. In May, 1941 he was elected president of Republic Aviation Corp.

Damon, with Republic's engineers, notably Alexander Kartveli, designer of the Thunderbolt, directed development of planes using radial air-cooled engines and engines equipped with advanced turbo superchargers.

VICTOR EMANUEL

President, Aviation Corp.

Another product of World War I aviation, Emanuel served with the U. S. Naval Flying Corps. Born in Dayton, O., in 1898, he graduated from the University of Dayton with an LL.D., and from Cornell. In 1937 he headed the group which acquired control of Aviation Corp. and became its president the following year.

L. C. GOAD

General Manager, Eastern Aircraft Division, General Motors

Fifteen years ago, Goad became the youngest plant manager in GMC at Delco-Remy battery plant, Muncie, Ind. Transferred to A. C. Spark Plug division at Flint, Mich., in 1933, he found himself directing the layout of a new plant. In 1938 he became general manager of the Division in GMC's Detroit offices, ultimately becoming assistant to vice president in charge of car and truck group. He remained there until formation of Eastern Aircraft Division in 1942, is now in Linden, N. J.

Eastern Aircraft Division became first unit in the auto industry to convert to complete airplane production, is now producing two

(Turn to page 62)

Council to Aid U. S., Industry

(Continued from page 13)

Vultee, Douglas, Lockheed, North American, Northrop, Ryan and Vega Aircraft Companies. They represent, said the council, 90% of America's warplane assembly, and a high percentage of aircraft engine and propeller production in plants throughout the nation.

Manufacturers represented in the council have increased production 255%, airframe weight, since Pearl Harbor. Production of aircraft engines has been increased 145%, in horsepower, during the same period.

'Necessary Liaison'

In a joint statement as presidents of the two regional councils, Glenn L. Martin and Robert E. Gross said: "Formation of the National Council provides a necessary liaison between East and West Coast manufacturers, and promises even greater production of aviation war materials in the future. We also have needed a fully representative office in Washington which could extend to the armed services and the War Production Board the immediate help of the entire aircraft industry, and at the same time keep the manufacturers abreast of national policies of the government groups."

Directors of the Eastern council who attended the national organization meeting were: Martin, Lawrence D. Bell, of Bell; Ralph S. Damon, of Republic; L. C. Goad, of Eastern Aircraft Division of General Motors; Guy W. Vaughan, of Curtiss-Wright; and J. Carlton Ward, Jr., of Fairchild.

Meeting with them were the following Western council directors: Philip G. Johnson, of Boeing; Harry Woodhead, of Consolidated Vultee; Donald W. Douglas, of Douglas; Robert E. Gross, of Lockheed; J. H. Kindelberger, of North American; LaMotte T. Cohu, of Northrop; T. Claude Ryan, of Ryan; and Courtlandt S. Gross, of Vega.

Government and military representatives attending the conferences included Rear Admiral R. A. Davison, member Aircraft Production Board, WPB, Washington, D. C.; Nelson Talbott, of the aircraft scheduling unit, Dayton, O.; Dr. A. E. Lombard, Jr., WPB, Washington; Capt. S. J. Zeigler and Capt. Lucian Grant, inspectors of naval aircraft, San Diego; and Col. D. F. Stace, acting district supervisor, Western Procurement district, AAF, Los Angeles.

Visit Western Plants

Western aircraft plants were visited during the week of conferences and specific industry factors were covered in detail such as methods of cutting man-hours, new engineers and manufacturing techniques, recruitment of labor, control of absenteeism, quality control through teamwork, combat-dictated modification of airplane equipment and spare parts, and materials conservation.

Irving Taylor, general manager of the Aeronautical Chamber of Commerce, was among those taking part in the conferences. Spokesmen said the Council will avail itself at every opportunity of all facilities of the Chamber, and Russell and Taylor said they will work closely together in Washington. All but four members

of the Chamber's board of governors are men from companies in the National Council, so that liaison between both groups is well established.

The exact relationship of the two organizations was still in the discussion stage, but indications were that the Chamber would continue to function as before in promotion of aviation as an industry, with the Council concentrating on war production facilities. Speculation was vague in regard to post-war roles.

In some quarters there was anticipation that the Central Aircraft Council, with headquarters in Detroit, chaired by Ernest R. Breech, president of Bendix Aviation Corp. and affiliated with the Automotive Council for War Production, might become an additional unit in the national AWPC.

Similarly, there were reports that mid-West manufacturers such as Beech and Waco were thinking strongly of a war production council of their own, possibly affiliated with the West Coast group, thus adding a roundup of the industry represented in the National Council.

At its inception, the council represented 90% of the aircraft manufacturing interests in the country whose total backlog of war orders exceeds \$17,000,000,000.

Engine and propeller divisions of the existing East Coast council members are now actively participating in the council, and others will come into active membership shortly.

British Interested

Interest of the British Air Ministry was demonstrated by a cable received a few days after organization of the council was formally announced. The ministry asked for complete details of the organization and its functions, indicating that some of the principles may be extended to the British industry.

Specific functions of the National Council, set forth in its incorporation papers, are:

(1) Serving as a research and information agency with respect to war production for members of the corporation and for manufacturers in the aviation industry in general, in cooperation with the armed services and agencies of national, state and local governments.

(2) Providing facilities for free and unrestricted interchange of such information among manufacturers in the aviation industry as will facilitate production in the interests of expanded and coordinated war production efforts.

(3) Encouraging and expediting the pooling of facilities, plans, practices and data contributing to increased management and employee efficiency, and the maximum production of military airplanes.

(4) Utilizing the joint resources of the manufacturers in the aviation industry, in cooperation with the armed services and Governmental agencies, in the interests of employee and public morale.

(5) Coordinating research and other activities with proper Governmental agencies in seeking solution of the problems of the aviation industry as a war industry, such as transportation and housing of employees.

(6) Correlating compliance and coopera-

Engineers at Warfronts Service All Plane Types

One of the first direct results of the functioning of the new National Aircraft War Production Council, Inc., has been the development of a system whereby maintenance engineers sent to the fighting fronts with warplanes are now prepared to service, inspect and report upon all types of planes—rather than merely the plane produced by the engineer's own company.

This practice will mean not only more efficient utilization of aircraft engineering manpower at the scenes of action, but will also help to stabilize sorely needed engineering forces in the factories.

Military restriction withholds data on the number of men who have been sent to the fronts to check on plane performance, recommend any modifications to meet conditions encountered in combat or affected by weather and other factors, and to see that military planes meet the most exacting specifications called for in competing with the enemy.

Full details and background of the national AWPC are given on page 13.

tion by manufacturers in the aircraft industry with rules and regulations governing assembly and release of public information promulgated by the War Production Board, the Army, the Navy, the Marine Corps, and all agencies of Government concerned in the war effort.

Manager Russell, upon arriving in Washington last week to set up offices, emphasized one aspect of the council with the declaration that "it is a reference center of such available public information as is releasable on the war production activities of the aircraft industry."

He also laid special stress on the following rule of the council:

"The national organization shall not concern itself with any of the following: lobbying, publicity, or any other activities seeking to influence any legislation, or with sales, contracts, profits, renegotiation and taxes."



What's Your Guess?

It may take you a while to figure out this remarkable Royal Air Force photo. According to British Information Service it shows a German DFS230 glider being towed by a JU87, taking off from a desert landing field.

Aviation's Role in Rubber Program Told

RFC Relies on Planes in 'Invasion' of Brazil

By CLIFFORD GUEST

THE full story of the role of aviation in the spectacular program undertaken by RFC's Rubber Development Corp. in providing the answer to the nation's problem of obtaining desperately needed rubber was unfolded for the first time to *American Aviation* by Douglas H. Allen, president of that agency, just before his departure a few days ago for his fourth flight to Brazil within a year.

In this far-flung rubber development program, American airplanes are writing a dramatic chapter in the economy of South America and the United States which foreshadows continued unprecedented development in the post-war era.

Numerous fantastic reports have found their way into print regarding aerial hunts for wild rubber in the trackless jungles of the Amazon Basin. However, in less than a year an historic "invasion" by air commerce has spread over a region

greater than the continental U. S., is altering the lives of 100,000 South Americans, and is rapidly bringing out wild rubber which never before could be reached.

The program began in June, 1942, and every phase of it has revolved around the use of air transport up to and including a current mass movement of 50,000 workers, many of them by air.

Speed characterized it from the start. Douglas Allen, for years an importer of Brazilian mahogany as board chairman of Otis Astoria Corp., of New York, was given the job of finding what rubber could be brought out of South America—and how. Returning to Washington after a survey trip, he sent a memorandum with his recommendations to W. L. Clayton, Assistant Secretary of Commerce and chairman of the board of Rubber Development Corp., on June 26. Allen was given the go-ahead by Clayton and Secretary of Commerce Jesse Jones on June 28. This, Allen believes, probably shattered all Washington records. But by that time there was no question about the need for speed in dealing with the rubber problem, and RDC had a nest egg of \$35,000,000 to do it with.

The State Department had negotiated for the purchase of all rubber which could be brought out. Allen's job was one of operations and his first problem was how



Morris & Ewing Photo

Discuss Rubber: Douglas H. Allen, president of RFC's Rubber Development Corp., right, shows Rubber Director William Jefferson Caffery, left, where work is being carried on in Brazil.

to speed communications and manpower through the vast areas of jungle and mountain to reach the sources of wild rubber—scattered trees growing only about two to the acre among the dense growths of other trees. He had to put supplies throughout that area, equipment, doctors, medicine, housing facilities, keep replacements going in, and bring the rubber out.

Airplanes were the answer, and Allen put development of the aviation program in the hands of Reed McKinley Chambers, a major of the Army Air Corps and commander of the old 94th Aero Squadron in 1918-19, founder of Georgia Airways, and vice president-treasurer of U. S. Aviation Underwriters, Inc., of New York. This was another example of practical airmen being given some of the toughest jobs brought on by World War II.

"Chambers pried planes loose from the Army and Navy and elsewhere," said Allen. "He had the first plane in operation in September."

Next step was establishment of a contract service operated by Pan American Airways for Rubber Development Corp. operating Sikorsky S-42 flying boats from Miami, Fla., to Manaus, 1,000 miles up the Amazon in the hub of the rubber country on frequent schedules.

"We couldn't possibly depend on travel priorities on the regular line," Allen said, "so we established an airline for our own use. There were accumulated shortages of nearly everything, and one crisis after another developed in the remote reaches of the Amazon. To get results we had to move fast, which meant we had to move by air."

Other swift developments included the use of daily scheduled passenger and cargo contract service between Belem, at the mouth of the Amazon, to Manaus using Sikorsky S-43's operated by Pan Air do Brasil, a subsidiary of Pan American. Another contract with Faucett Co. of Lima put Consolidated PBY's into service between Talara, on the coast of Peru, and Iquitos at the headwaters of the Amazon. Air service also was established between Manaus and Puerto Velho. In addition, Rubber Development Corp. had its own Consolidated PBY's to fly routes as necessary, using Manaus as the hub of operations. Within a short time Allen also had arranged for extensions of several of the existing South American airlines to fill in missing links.

(Turn to page 28)



Map by Universal Airline Schedules

Wings Over the Rubber Country: Heavy dotted line shows the vast area of the Amazon Basin, as large as Continental United States, throughout which the Rubber Development Corp. is revolving its spectacular enterprise around the use of airplanes. Heavy arrow at right shows drought area from which 50,000 workers are being recruited by plane to tap wild rubber in the Amazon jungles. Operations extend over a major part of Brazil, Colombia, Ecuador and Peru.

"ME? I'm going to buy a little farm"



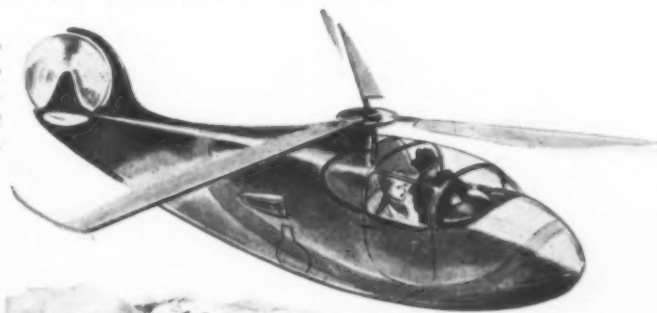
"WHEN WE'VE TAKEN care of Goering's boys, I'm going back to West Virginia and get me a little farm. But I won't be holed-in like the old folks were. I'll have my own plane . . . maybe one of those helicopter jobs they're talking about that can go

straight up and down and land in the back yard. Then I'll be able to hop into town, or across the country, any time I want to. With the right kind of instruments, I'll be as free as the air I fly through. And, brother, that's for me!"

WHAT THE PLANE OF TOMORROW will look like, or how it will perform, we don't exactly know. But we do know that Kollsman research engineers are constantly planning and developing new and better precision aircraft instruments . . . to help smooth out tomorrow's skyways, and give safer wings to a nation at peace.

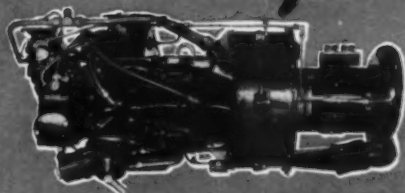


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McCarran Fights to Keep WTS 'Pocketbook' Control With CAA

A FIGHT to keep "pocketbook" control over War Training Service, successor to Civilian Pilot Training Program, with the Civil Aeronautics Authority of the Commerce Dept. was promised recently by Sen. Pat McCarran (D., Nev.), high-ranking member of the Senate Appropriations Committee.

McCarran's challenge followed official disclosure that present administration plans are to make 1944 fiscal year appropriations for WTS to the Army and Navy.

In line with this policy, Director of the Budget Howard Smith has blocked legislation which would authorize 1943 fiscal year funds appropriated for CPT to be used for WTS. Smith pointed out that all appropriations for training men on active military status should come through Army and Navy.

If the present Budget plan to transfer financial control is carried through, actual running of WTS will be by the military with Commerce Dept. set up as a "front," McCarran said.

"CAA is where appropriations for the nation's 'civilian' pilot training belong," he exclaimed.

Asked what he believed his chances for success were in bucking the formidable Budget Bureau, the Senator remarked: "We can only wait and see—but Congress is the appropriating body of this government and it is for us on the Appropriations Committee, and not the Budget Bureau to decide what appropriations shall be made and where they shall go."

McCarran's struggle to steer appropriations for WTS to the Commerce Dept., is viewed as fundamental to his effort to keep civil aviation alive during the war and protect its interests. He has objected that the Army Air Forces "from its head right down the line is opposed to any measure which allows pilot training by civilians." This country should heed the experience of England, which first turned its civilian pilot training over to the military and because of the consequences was forced to put it back in civilian hands again, he maintained.

Compensates Trainees

Two accomplishments scored by the Senator during the past fortnight were:

(1) To get an amendment of \$3,500,000 attached to an appropriation bill for compensating CAA's non-combatant trainees \$50 a month;

(2) To bring about a "thawing out" of WPB's order L-262, freezing the sale and rental of light planes.

McCarran's proposal to pay CAA's non-combatants has the expressed approval of Secretary of Commerce Jesse Jones and R. McLean Stewart, Executive Director of WTS, and strong support in the Senate, but it is opposed by the Budget Bureau. Measures to authorize the compensation were blocked in the Commerce Committee by unfavorable Budget reports. Sen. Alexander Wiley (R., Wis.) advocated that the non-combatants be

placed on active military status and automatically receive compensation. Stewart opposed Wiley's proposed shift of the trainees to active status, however, claiming that they will be needed in the civilian jobs for which they were intended. An amendment by Sen. Robert LaFollette (Prog., Wis.) would authorize pay for the trainees and permit them to retain inactive status. The LaFollette amendment would give customary prior authorization to McCarran's proposed appropriation of \$3,500,000.

Wiley and LaFollette submitted their amendments reportedly on information sent them, as well as innumerable other Senators, and Congressmen by Bradley R. Taylor, who identifies himself as "past president, Polar Bear Association, Veterans of the North Russian Expedition, Rhinelander, Mich." At any rate Taylor is credited in Congressional circles with stirring up considerable flurry over the plight of uncompensated CAA pilot trainees and starting letters rolling on the subject among several Congressmen and Senators, War Dept., Commerce Dept., and Mrs. Eleanor Roosevelt.

Bradley's letters explained the "unhappy situation in which some 9,100 men are being left in phase 2 of the CPT program." "Phase 1" of CPT, in which college students were given flight training on a part-time basis was "the finest thing we ever had," he maintained. "Phase 3" of CPT, or WTS, in which all men will be on active military status and compensated according to rank or rating is also approved by Taylor. However, in his letters to Congressmen, Senators, and Mrs. Roosevelt, he said of "phase 2":

"When the CPT program was changed early and many times during 1942 it was stated by the CAA that the purpose of the program was to train men for the Army Flying Forces. This was made in verbal statements and in written statements to the men in the various states. The men were to be made ferrying pilots, transport pilots, or even instructors . . . after some 9 months of training the Army



Help for the RAF: The British Air Transport Auxiliary, Women's Section, ferry new planes from factory to aerodrome, thus relieving RAF pilots. Photo shows 2d Officer Helen Harrison entering a Spitfire.

Duck Club Formed

When a member of the Civil Air Patrol's Coastal Patrol makes a forced landing in the water, he automatically becomes a member of the Duck Club, CAP's equivalent of the Caterpillar Club, whose members qualify by bailing out over land, was conceived by Lt. Col. L. A. "Jack" Vilas, CAP executive officer. The Duck Club insignia depicts a white duck superimposed on a field of black. It is worn below the flap of the left pocket of the shirt or blouse.

denies this program, leaving the men up in the air as to what they have been training for. Men entered this service on the promise of the CAA. They were told that they would have to support themselves for only from 16 weeks to six months, but because weather and lack of flying materials have held courses up, these men now find themselves destitute, Taylor claimed.

A letter to Mrs. Roosevelt from Lieut. Col. Frank McCarthy of the General Staff insisted, however, that CAA's non-combatant program "provided an opportunity for civilians to learn to fly airplanes at the expense of the government, although the government never agreed to supply them with clothing."

Following protests from flight training contractors all over the country who are eliminated in the new WTS's centralized training program, McCarran brought WPB and CAA officials together at an executive hearing and effected an agreement to loosen WPB's order L-262, which would have prohibited all but WTS contractors from utilization of light aircraft.

Other Steps Pending

Other steps to aid former CPT contractors who have purchased additional equipment on alleged promises that their programs would be enlarged, but who instead have been cut out on the new WTS centralization, are "still in the making" McCarran reported.

At an executive hearing before McCarran's subcommittee, he and Stewart clashed over the relative merits of CPT and WTS. McCarran charged that WTS is a "boggling down" of CAA's pilot training program. "We have made great steps forward in correcting the mess that was in existence when I came here—and it was a mess that I didn't create," Stewart contradicted.

"I take full responsibility for the steps which I have taken on and since Jan. 1943 to correct the situation which existed when authority was placed in my hands and of the measures which I have arranged to provide a job for civil aviation," Stewart told McCarran's subcommittee, adding: "I cannot accept responsibility for sins of omission or commission previous to the date of my appointment."

Stewart emphasized that WTS would do as much or more to keep civil aviation alive during the war period as CPT, and said that funds for the program which will come out of Army and Navy appropriations this year will "certainly amount to at least 75 and perhaps as high as 100 million dollars." This year's CPT allocation was somewhat over 72 million. The Army will use WTS to train around 70,000 of its men and the Navy beginning

(Turn to page 22)

Navy Cuts 148 WTS Schools to 80; 'Freeze' Order Liberalized

Events of the past two weeks leave the War Training Service in as confused a situation as ever. On the negative side of the picture for CAA is the Navy's reduction of training centers from 148 to 80, the most drastic trend toward centralization yet. To counteract this tendency to eliminate many operators from the war effort are more opportunities created by further liberalization of L-262, hints from many sources that plans for a women's training program are coming to a head, and a placement service established by WTS for locating operators and instructors in suitable positions.

Of the 128 WTS schools now finishing up training programs for the Navy, 43 will not receive renewed contracts, R. McLean Stewart, Executive Director of Training told *American Aviation*. They were eliminated by Navy and CAA inspectors on the basis of reasons such as: inability to house increased numbers of cadets; extreme distance of flying field from school (in some cases as much as 100 miles), and bad climate which frequently prevents flying.

When the newest class of naval aviation cadets left indoctrination and pre-flight camps on Apr. 16, they were split into groups of 80 to 100 and placed in 85 War Training Service schools. This move to centralize more cadets in fewer centers was necessitated by Navy's desire to maintain uniformly disciplined training throughout its whole program and by its inability to provide officers for small scattered groups of cadets under the former WTS system.

Admits Dislocations

"The consolidation program is now underway and will be completed within the next two months," William A. M. Burden prophesied on Apr. 20. At the same time he made public critical conditions leading up to the issuance of WPB Limitation Order L-262 and admitted that the "initial application of its controls led to some dislocations."

As soon as this became evident a joint release of WPB and CAA and a CAA administrative order were issued stating that aircraft could be used by their owners for any legitimate transport purpose provided that planes were not rented. It also stated that rentals for instruction of students who are certified by CAA as complying with certain standards in qualifying themselves for flying jobs in the war effort would be permitted. Planes used for this purpose are naturally still subject to purchase if needed by WTS for military training. Finally, operators were urged to discontinue all flying not strictly essential to the war effort.

Standards of qualification in the war effort are elaborated on by a recent CAA appeal to all owners of registered aircraft. WPB permission may be obtained upon application, the appeal states, to all who qualify in age, physical fitness, and experience for the following essential flying jobs: pilot in the armed forces; flight instructor in Army, Navy, CAA or Airlines War Training Institute contract flying schools; pilot for scheduled air carriers; pilot for aircraft or accessories manufacturers. Ap-

plicants must agree to contract for sufficient training to qualify for the certificate or rating required for the type of employment specified, show evidence of financial ability to complete training within six months, and pledge themselves to accept war work on completion of training.

CAA warns that "permission to rent aircraft will be valid only so long as a plane not required by WTS is available . . . instruction may be interrupted or discontinued at any time if aircraft which has been used is called into service by WTS."

Instructions sent out to field CAA offices, stating procedures and requirements for approval of flight instruction requests, point out that "the Chief of Aircraft Priorities Branch, WPB, has further agreed that airplane owners may obtain a 'blanket permission' to rent specified aircraft for flight instruction" to any individual who presents certification by the CAA administrator or officers designated by him.

Mr. Burden presented the hopes held out to operators eliminated from War Training when he pointed out there were still several possibilities for future operations. "They will be able," he said, "to continue commercial training under relaxation of the WPB order . . . though still subject to certain restrictions. There is also a possibility that a training program for women instructors will be undertaken. Finally many who may not continue as independent operators can obtain positions in our own field forces or supervisory or instruction posts with CAA-WTS contractors. WTS has established a placement service for such men, and instructors and technicians seeking employment who apply to WTS regional offices will be promptly advised as to where their services can be utilized."

Meanwhile in the southwest irate operators who missed out on WTS contracts joined together in protest. A meeting was held Apr. 23 in Kansas City, directed by Edwin Rithey, to "organize on a national scale the society known as Aviation War Activities." Its immediate aim, they inform *American Aviation*, will be to encourage development and attempt to more properly utilize existing facilities and personnel in furtherance of our war efforts. The thousands of fixed base operators that have been arbitrarily eliminated believe that by unification they may aid Senator Pat McCarran in his noble fight to preserve civilian aviation.

Newest development in the CAA picture is the announcement that arrangements have been made with the War Department to allow voluntary induction and subsequent assignment to the Air Corps Enlisted Reserve on temporarily inactive status of instructors, mechanics and other WTS school personnel. These men will be placed on active duty within six months or a year as their places can be filled by men now being trained as instructors or by women if the proposed training program is authorized. In this way seasoned men can be fed into more advanced duties without interrupting the training of aviation cadets.

11 CAP Fliers Lost

Eleven members of the Civil Air Patrol have been lost in action during the first year of CAP active duty and practice operations, according to a survey of the 48 wings and coastal and courier bases completed Apr. 16. Ten fatalities were on coastal patrol duty and one on an inland training mission.

WTS Funds

(Continued from page 21)

with the present month will be using it for training of over 30,000, Stewart said.

After testimony revealed that plane shortages have held up all but the elementary CAA course during the present year, Sen. Kenneth McKellar (D., Tenn.) demanded that CAA submit a breakdown of its expenditures, declaring: "We furnished some 72 million for pilot training, and now it appears we haven't had very much pilot training except elementary training, yet the 72 million dollars have been spent. . . ."

"My responsibility in this job began in Jan. 1943," Stewart explained. "I found a situation that had to be remedied. It was bad. I have been trying to remedy it. One way by which to remedy it is to get planes for the advanced courses so that men who have been waiting around and not flying can fly."

Job Only Half Done

He said that in January he went to Secretary Jones who had \$25,000,000 of Defense Plant Corp. funds set aside for purchase of planes for WTS. Since then, Stewart said, the planes have been coming in to flying centers at a good rate, but he added that the "job is only half done and still more must be acquired from private owners and from contractors."

McCarran pointed out that contractors had been led to believe that they would be working under CPT contracts and had bought equipment which was now under threat of being taken away from them. Stewart said that "to insure that . . . critical materials would not be used up in non-essential flying and to insure the availability of planes to us, we asked WPB to issue the order", L-262. Before this freezing order, he claimed, "a situation had developed in which prices had been pushed up to absurdly high and artificial levels because the manufacture of planes for civilians had been stopped". Stewart remarked that there are over 850 secondary trainers in the country, and he said that the WPB order would save "millions" for the government, by eliminating highly competitive bidding for sale and rental of scarce types of training planes. WTS prices for planes will be based on a "fair" valuation, he asserted.

McCarran called Stewart's attention to the number of contractors who would be put out of business by the new WTS centralized program. Stewart admitted that "some" would necessarily have to be, but he added: "We need every man in civil aviation who has the capacity to do a job of training, if he is an instructor or a mechanic or if he can assist as a supervisor, and we need every civilian owned plane suitable for purposes of training."

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NOT all war assignments are in far-off places. Nor are they all on battlefields.

There's many a vital war assignment right within the continental bounds of the United States...in the plants and factories that turn out the implements and weapons of war.

Fleetwings' assignment, for example, is in Pennsylvania. Here, men and women build planes and plane parts to sweep the Axis from the skies.

How well Fleetwings' men and women are doing their job... how fast they are turning out the many wings, fins, ailerons, stabilizers, flaps, tail assemblies, fuselage sections, and hydraulic valves they're building... is evidenced by the Army-Navy "E" burgee that flies over Fleetwings' Plant Number One.

But the men and women at Fleetwings aren't satisfied merely to fill their war assignment. Even now, on Fleetwings' drafting

boards, there are plans being completed which indicate that the battle being fought today, will not have to be re-fought tomorrow. With Victory, Fleetwings will be ready with the planes and plane parts to help win the Peace.



(Plant No. 1)

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Ryan supplies the exhaust systems. And they're good—they have to be good to meet extreme service conditions of Arctic wastes or steaming jungles. So, wherever the many military planes equipped with Ryan exhaust manifolds pause in their flight, maintenance men have learned to know and appreciate that Ryan Builds Well.



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Dick du Pont Heads AAF Glider Program

Richard C. du Pont, president of All American Aviation and an outstanding glider authority, has been named special assistant to the Commanding General, Army Air Forces, and will have charge of the AAF glider program, the War Dept. announced Apr. 23.



du Pont

Mr. du Pont, serving in a civilian capacity, will, with respect to the glider program, "have the authority of an Assistant Chief of Air Staff," the announcement said. Under the recent AAF reorganization, six Assistant Chiefs were named to head up important AAF functions. They are all-powerful in directing the war effort under Gen. H. H. Arnold and his chief of staff, Maj. Gen. George Stratemeyer.

The War Dept. release of Apr. 23 stated:

"The appointment of Mr. Richard C. du Pont, of Granogue, Delaware, outstanding glider authority, as Special Assistant to the Commanding General, Army Air Forces, in charge of the Army Air Forces Glider Program, was announced by the War Department today. Mr. du Pont, serving in a civilian capacity, will assume his duties on April 27.

"Mr. du Pont was a pioneer in gliding in the United States, and has held American soaring and altitude records. In June, 1942, Mr. du Pont successfully demonstrated at Wright Field, Ohio, the use of a system for the pick-up of Army Air Forces military gliders by an airplane in flight.

"As Special Assistant on the Army Air Forces Glider Program, Mr. du Pont will have complete charge of glider production and training, and with respect to the glider program will have the authority of an Assistant Chief of Air Staff.

"The Army Air Forces is concentrating on operational and combat training for glider pilots and has temporarily suspended the elementary and basic glider pilot training program. Men currently in the advanced training stage of this training will continue it, becoming glider pilots with the rank of Flight Officers, and going on to operational training.

"Mr. du Pont was born in Wilmington, Delaware, in 1911. He holds a private pilot's certificate, and established a national soaring distance record of 158 miles at Elmira, New York, in 1934. He entered the manufacture of sailplanes in 1935. He has been president of All American Aviation, Inc., since 1938, and is a director of the Soaring Society of America and of the Institute of Aeronautical Sciences."

Murray Named

Richard C. Murray has succeeded Russell Cantwell as aviation commissioner of the Kansas City chamber of commerce.

A New Record

During February, the heaviest month to date for delivery of aircraft to the fighting fronts, the Air Transport Command lost only four-hundredths of one per cent of the planes flown. This was revealed April 5 by Major Gen. Harold L. George, chief of the Command, at a press conference "somewhere in Australia." The figure represented a drop of three-hundredths of one per cent from the best previous mark. Not a single plane, the general said, had been lost as the result of enemy action on the long Pacific ferrying route, "although there have been attempts to interfere."

Secret of Bombsight Still Safe, Barth Says

The secret of the famous Norden bombsight is still safe from the enemy, even though the Army Air Forces recently lifted the veil slightly and even permitted reporters to examine the sights and attempt to use them.

Said Theodore H. Barth, president of Carl L. Norden, Inc.: "Even if the Germans were given the Norden blueprints, it would take them a year and a half to tool up. Then they would have to teach people to use the tools. It is comparatively easy to build two or three bombsights, but to get sizable production takes a terrific effort.

"It took our Army and Navy nearly 10 years of organized schooling—before Pearl Harbor—to educate what was then believed to be a sufficient number of men to use and maintain the bombsight. . . . After Pearl Harbor all trained men that could be spared from combat duty became instructors. The bombardier schools operated around the clock to produce the bombardiers who now are obtaining pretty good results.

"Even today, with our long-established set-up, it takes us eight months to train

Aircraft Production Up 55% in Britain

British aircraft production during the first quarter of 1943 was 55% higher in structure weight than for the same period a year ago, Sir Stafford Cripps, Minister of Aircraft Production, declared in an address Apr. 20. Cripps asserted that the aviation industry was now the country's largest.

Fifteen thousand separate firms are engaged in making 70,000 different pieces of fabricated materials to go into planes. Women are doing nearly 40% of the work in the entire industry, he said.

Sir Stafford disclosed that four-engined bombers were being flown off the assembly line three-and-a-half times faster than in 1942. The main bottleneck, he said, is the shortage of highly skilled personnel.

Increased efficiency by labor and management was credited for achieving the production record. Cripps admitted there had been a few failures in management, but these "were exceptional cases." Observers believed that one failure the minister may have had in mind was Short Brothers, makers of the Stirling four-engined bomber, who were expropriated by the government.

"With the United States we have the most friendly and close liaison," he said. "Recently we sent over a special mission of highly qualified technicians under Sir Roy Fedden, who was shown everything by our American allies and given every help and assistance. This mission has returned with what we hope will prove to be the most valuable results of our war effort.

maintenance men, and we have the finest kind of talent to begin with."

The sight contains several thousand parts and Col. John P. Kenny, commandant of the AAF Bombardier School at Midland, Tex., declared it would take Axis scientists two years or more to duplicate it. Cadets learn enough about it to make superficial repairs, but bombsight men defy them or any one else to take one apart and put it together again without months of careful training.



Time Out for Lunch: Caught by the camera as they stopped for a bite at the airport cafe operated by Western Air Lines at Long Beach were, left to right, R. D. Sturtevant, chief of CAA's air traffic control branch, Santa Monica; Lieut. Col. Andrew B. Cannon, Air Transport Command, and Nancy Harkness Love, WAFS leader.

Army Reveals Details of Tokyo Raid

THE dramatic story of the 16-plane raid on Tokyo was told officially by the War Dept. on Apr. 20, a year and two days after Lieut. Col. (now Maj. Gen.) James H. Doolittle led his B-25 bombers over the Japanese capital.

The Army disclosed that "Shangri-La" was a U. S. aircraft carrier—a fact that has been unofficially known in the aviation industry for many months. It also revealed that all but one of the bombers made forced or crash landings.

Explaining that it was impossible to keep secret indefinitely the details of the attack, the War Dept. asserted that "if the secret could always have been kept from the Japanese . . . it would naturally have added to the tension with which Japan awaits the attacks that still lie ahead."

Text of the War Dept. release follows: Additional details regarding the raid of April 18, 1942 now may be disclosed. The U. S. S. *Hornet* was the "Shangri-La" from which the American planes took off to bomb military objectives in Tokyo and four other Japanese cities. This aircraft carrier, which carried the flyers of the Army Air Forces to within 800 miles of Tokyo on their mission, subsequently was announced as lost in the Battle of Santa Cruz on October 26, 1942.

The objective of the 16 North American B-25 medium bombers was to attack definite selected points—armament plants, dock yards, railroad yards and oil refineries—in Tokyo, Yokohama, Nagoya, Kobe, and Osaka. This objective was carried out with accuracy and complete success. At the same time, the raid resulted in freezing within Japan, Nipponese airplanes and other forces which might have been used in offensive operations elsewhere.

The American planes were to have sought specified landing fields in China. Because of a combination of circumstances the planes were unable to reach their assigned landing fields. One came down in Soviet Russian territory. The others made forced or crash landings in China—some in Japanese occupied territory—or in water off the Chinese coast. All these planes were wrecked.

Five of the 80 American participants in the historic raid are interned in Russia. Eight are prisoners, or presumed to be prisoners of the Japanese government. Two are missing. One was killed. Although several were long delayed, the other 64 participants made their way to the camps of our Chinese allies and then back to American authority. Seven of those who escaped in this manner were injured but survived.

The preparation for the raid on Japan, first conceived in January, 1942 was carried out in the utmost secrecy with thoroughness extending to the most minute details. Major General James H. Doolittle, who was then a Lieutenant Colonel and a celebrated flyer, combining the reputations of a daredevil and a most proficient painstaking technician, chose the men to accompany him on the venture. All were volunteers who at first knew only that they were going on a

mission whose importance was equalled only by the hazards involved.

About three months were spent in preparations. General Doolittle and his men finished their training at Eglin Field, Florida. It was the first time that medium bombers of the Army were to take off in numbers from an aircraft carrier of the Navy. Special experience was required.

Using white lines on the field to measure, the flyers concentrated on taking off in the shortest possible distance. Patiently the members of each airplane crew pored over maps, and by pictures and silhouettes learned to recognize instantaneously the features of the course they were to travel over Japan and the particular objectives they were to bomb. The Norden bombsight was replaced with a simple 20-cent sight devised by Captain (now Major) C. R. Greening in order to preserve the secret of the Norden sight should any aircraft be forced down in Japan.

Each plane was given the particular factory or shipyard, or arsenal, or oil works which it was to destroy,—all military targets. At the outset of the train-

ing period it was decided that the planes should come in over Japan flying extremely low to escape observation and anti-aircraft fire and to make even more sure of the accuracy of their bombing. In practice for the great venture ahead, the planes in training swept in over the American coast and fanned out as they would have to do over Japan to attack their military objectives in or near the five cities which were involved. Exactly similar geographical distances were traveled over American territory toward objectives resembling the goals in Japan.

At a rendezvous port the flyers and their planes were loaded on the aircraft carrier *Hornet* to start the voyage which was to take them within range of Tokyo. The commander of the task force was Admiral William F. Halsey, Jr., who had already achieved fame as a skillful and bold leader of Naval raids upon Japanese bases in the Pacific. Admiral Halsey is now commander of all American Naval and Army forces in the South Pacific area.

Aboard the *Hornet* training was continued. There were lectures on Japan and talks on navigation, gunnery and meteorology. The gunners practiced with shots at kites which were flown above the aircraft carrier.

The original plan was to proceed through hazardous waters to a point within 400 miles of Tokyo. There the planes were to be launched and their fate left to the hands of their crews and to Providence, while the Naval task force made its own precarious escape.

It had been planned to take off just before dark, to make the attack on Japan at night and to arrive at Chinese airfields in the early morning. But when the aircraft carrier was still 800 miles from Tokyo, it met complications. Having avoided one enemy patrol vessel and while trying to steer clear of another, it ran into a third Japanese ship. This ship was sunk, but it was feared at the time that the Japanese aboard it might have been able to use their radio and to warn Tokyo. (It later appeared that this was not the case). Therefore, instead of waiting until evening and drawing much closer to Japan in the meantime, the planes took off on the morning of April 18. That was 10 hours ahead of the planned departure time. The added distance to be flown naturally added greatly to the hazards of the mission. But there was not the slightest hesitation. General Doolittle and his men were eager to take off. Whatever the chance of arriving at the airfields in China, they had at least reached a point where Tokyo and the other Japanese cities were within bombing distance.

It was agreed that if the planes could not reach the Chinese coast, the men would try the dangerous feat of landing on the water, there to take to their rubber boats.

It was rough weather as General Doolittle bade good-bye to Admiral Halsey and undertook the great adventure. One by one the big Army bombers roared from the aircraft carrier. The take-offs were difficult on a bobbing and slanting deck. Water slapped over the bow of the

(Turn to page 32)

Jap Device, Placed on U.S. Market Prior to War, Boomerangs



A Japanese-made slide rule, placed on the American market to undersell domestic products before the war, was used in making thousands of calculations on engine performance and fuel consumption for the Army Air Force during preparations for the bombing of Tokyo a year ago.

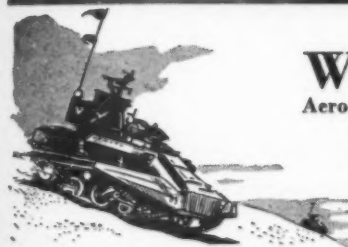
This was revealed by the Wright Aeronautical Corporation April 18—the first anniversary of the famous "Doolittle flight." The rule, a model of workmanship, was given to Robert E. Johnson, Wright's chief field engineer, after the corporation had entered war production. It was meant to be a "gag." In the above photo, he is shown holding it.

Johnson examined the rule and found it to be "exceptionally precise." He and Field Engineer Frank Lary used the device, which bears a Rising Sun emblem, in working out power control charts requested by the Army in the preparation of an exact flight plan for the Tokyo trip.

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Planes Aid RFC's Vital Rubber Program

(Continued from page 18)

These developments provided quick and alternative outlets to the eastern, northern or western coasts of South America, from the inland rubber country, and direct connections when necessary with the United States—making it possible to circumvent exigencies which might arise from war conditions.

Meanwhile, the Air Transportation Branch (operations) of the Rubber corporation was working miracles in putting men, equipment and supplies into the jungle. Key men in this branch under Chambers are Ford Studebaker, aeronautical advisor; E. L. Stuhman, in charge of communications engineering; and Cecil G. Coppage, in charge of operations.

Every piece of equipment was moved in by air, and as much rubber as possible was ferried back in the empty planes.

Twenty-five skilled carpenters were flown to Manaus to build the necessary living quarters. Planes carried in 175,000 pounds of electrical machinery and power equipment, refrigeration equipment, more than 30 small radio stations, and between 30 and 35 Diesel power plants weighing up to 6,000 pounds each.

'Hour from Washington'

Mechanical engineers, electricians, radio engineers and technicians all were flown in to set up and operate these new facilities. Providing a final modern innovation, even air conditioning equipment was taken in to make houses in the steaming jungle city habitable. Photographic laboratories were set up as part of the broad scientific program inherent in the enterprise.

From the standpoint of the communications section, Stuhman painted a vivid picture of accomplishment. By teletype and radio, the rubber developers can now "talk" with Washington within one hour—where previously the shortest period of communication was 14 days by letter or six days by cable, he said.

"We have drawn the key points of the sprawling rubber country close together," he said, "for information of navigational assistance to our aircraft, and for all the other needs of this swiftly expanding program."

Weather Studies Made

The Air Transportation and Communications branches have gone further and set up a meteorology department in Manaus under Hugh Spangler, who was recruited from the U. S. Weather Bureau in Washington. Original weather studies are being made through surface and balloon operations and radiosonde.

"No such studies have been made before in the Amazon basin," Stuhman said, "and they have many far-reaching aspects, particularly from the standpoint of the future of aviation throughout that area."

Currently his section is installing radio beacons up and down the Amazon valley, each beacon with a complete station. They are being operated by native personnel, Rubber Development Corp. even

reaching out to train the natives for this activity.

"We are training them so far as possible to provide a foundation for their own aeronautical system," he said. "It is more satisfactory, and we have no intention of remaining in South America to do all these things after the war crisis is past."

Direct communications to Washington move through government channels, and in Washington another aeronautics agency ties in with the program in an important capacity. Messages from the rubber country clear through Civil Aeronautics Administration's communications service, preventing duplication and moving them swiftly to the proper destinations.

While these developments were taking shape, actual work on the rubber development enterprise was moving forward at an equal rate.

Today there are 50,000 tappers at work or en route to the Amazon and crude wild rubber is coming out. Urgently needing more manpower, alert Mr. Allen found his opportunity to secure men when a periodic drought devastated the agricultural region of Ceara, on the bulge of Brazil. He negotiated an agreement with the Brazilian government, which through one of its agencies will recruit 50,000 rubber workers from the drought area. Again airplanes were the answer to a tough problem, and Lockheeds have been made available at Belem in connection with the recruiting program. Probably never before has such a mass movement of workers been undertaken, under such circumstances.

Epidemics Conquered

"Speed is the essence of the rubber program," said Allen. "River traffic is slow and uncertain. For instance, it would take a native worker two months to go from Rio Branco to Belem for supplies, and by the time he got back the rubber season would be over."

In addition to flying in personnel, equipment, supplies and food for the gigantic enterprise, Allen has utilized air transport to avert three different crises during the past few months.

First there was an epidemic of malaria. The rivers were dropping and at their worst. Allen brought in 3,000,000 atebine anti-malarial tablets by air and distributed them to the scattered outposts by air—and succeeded in getting the epidemic under control.

Again, a shortage of gasoline paralyzed the small boat system and brought most normal operations to a halt. Stockpiles of petroleum products disappeared and coastal ships were tied up after submarine sinkings began off the Brazilian coast. Allen negotiated with the Brazilian government for release of rationed gasoline to keep rubber operations and transportation going, again turning to air transport for the solution.

The third crisis came with a shortage of food. "Men quit rubber hunting by the hundreds to go and hunt food instead," Allen said. "You can't hunt rubber and food at the same time." So sup-

plies of food were flown in—and another air transport record was set.

"Actually we are getting an underpinning for the whole economy of the Amazon Basin through this program," Allen pointed out. "Getting rubber is the prime concern, but it would take a book to describe all that is being accomplished as a result of these operations."

The rubber development covers an area approximately the size of the U. S., extending over a vast portion of Brazil and covering most of Peru, Colombia and Bolivia.

Newspaper reports have told of large parachute corps being flown over the jungles and dropped where rubber trees were spotted (leaves of the rubber trees turn yellow in April), and then hacking their way to the nearest stream to make a clearing for other parachutists. Allen set the factual record straight in this regard with the assertion that it just can't be done.

Seaplane Base Built

However, reconnaissance flights are being made over the entire jungle from Manaus and other points to spot rubber trees. But wild rubber is uncontrolled, averages only about two trees to an acre of forest, and mass production methods do not work because of the scattered nature of the growth, he said. Once promising rubber growth is spotted from the air, tractor trails are started and workmen move in through the jungle to tap the trees.

Various figures have been published regarding the "take" of rubber from this enterprise. Rubber Development Corp. will not disclose its figures because of their military importance.

"But," says Allen, "there will be a substantial increase in 1943. And more in 1944."

Lack of airports and landing areas presents a major problem in the entire undertaking. Only where it is absolutely necessary does Rubber Development Corp. undertake the laying out of fields, or improvements. A seaplane base at Manaus with a floating dock is still under construction.

Flies 120,000 Miles

It was demonstrated unquestionably, however, that the jungle areas which have been virtually impenetrable and still mysterious, can be conquered from the air. And it has set into motion within a few months an industry that will go far in keeping American land vehicles and American industry geared to rubber, and which will figure importantly in the post-war economy.

Typical of the way in which aviation dominates the entire enterprise is the fact that Allen has flown 120,000 miles during the past year in pushing it to its present state of development. The Washington office of the corporation, at 1626 K Street, N.W., is in the capable hands of Robert O. Case, Allen's assistant, during the extensive periods when he with his airplanes and his tappers on the jungle front.

Air Training Crashes Protested in House

Freshman Congressman James H. Morrison (D., La.) protested on the floor of the House during the past fortnight against the number of crashes in the Army's air training program.

The War Department's own figures have "conclusively proved" that the accident-prevention program of the Air Forces "has been a failure . . . these . . . statistics showed that during the past year crashes caused by personnel errors were reduced by merely 1%, and mechanical defects increased by 1%", a letter read to Congressmen by Morrison contended.

It charged that "one of the most amazing examples of despotic bureaucracy ever practiced on a citizen" has occurred in the AAF in its alleged attempt to conceal training accident records.

The letter, written by Joseph Lieb, told of the case of Francis J. Reuter, 3620 16th St. N.W., Washington, D. C., who "is a university graduate and holder of several college degrees".

Reuter was employed by the War Dept. as a civilian chief of the statistical bureau of the Army's air branch, according to Lieb's letter, which related:

"More than a year ago, Mr. Reuter was instructed to prepare a report on . . . plane accidents, etc. It comes to my attention that the compilation was so startling that his superiors demanded that he destroy the data. Mr. Reuter, so I am informed, refused to do so. As a result he was relieved of his position and was ordered to report to a southern State where he was assigned to 'special duty' which consisted mainly of twiddling his thumbs. This went on for several months. Then Mr. Reuter, tired of loafing, returned to Washington and demanded that he be allowed to resume his former duties. This was denied. Instead, he was told to report to the War Dept. each morning, sign in, then go home. Reuter did this for several months.

"He has told friends that his apartment has been invaded by Army officials, without due process of law, and that his private papers and property have been ransacked by these officials who had feared that Mr. Reuter may have made copies of his plane crash report."

The letter recommended that Reuter be subpoenaed before the Truman Committee, which is now engaged in investigating plane crashes "in open session".

Delivery Record

An Army heavy bomber recently was flown 11,748 miles from the United States to an advance base in India in 67 hours and 35 minutes, the War Dept. announced Apr. 4. The flight, completed without mishap despite the hazards of long overwater hops, established a new record for delivery of aircraft over such a distance, said the report. The pilot, Lt. Edward W. Higgins, Garden City, N. Y., has received the Distinguished Flying Cross for this and three other flights. Three members of the crew have received the Air Medal for this and two other trips. They are: Lt. William R. Charnley, navigator, Ann Arbor, Mich.; Sgt. William C. Fields, Big Stone Gap, Va., and Sgt. Robert L. Rice, Bethlehem, Pa.

U. S.-Trained Chinese in Action Against Japs

Two groups of Chinese aviation cadets, the first trained in the United States under the lend-lease program, now are in action against the Japanese with the Chinese Air Force and the 14th United States Air Force in China, the Office of War Information announced April 17.

Those in action include pilots, radio technicians, and armorers. The pilots are with combat pursuit groups—strafing enemy ground forces and defending cities and air bases against Japanese bombing raids, the announcement said.

Other cadets are in training in this country, most of them as pursuit pilots. Training Chinese crews for U. S.-made heavy bombers is expected to begin shortly, the OWI reports.

NATS SQUADRONS: Two naval air transport squadrons have been commissioned for service through the Caribbean area and into South America, thus adding two important links to the nation's chain of aerial supply lines. In brief ceremonies at Miami, Fla., April 3, Captain C. K. Wildman, commander of the air transport, Atlantic Fleet, read orders to Lieutenant Commander S. W. Hopkins, in charge of a land-based squadron, and Lieutenant Commander H. R. Canaday, head of a naval seaplane unit. The new services will carry vital cargoes south of Miami. They were added because of greatly increased traffic between the United States and Latin-American ports, the Navy said.

Planes Not Lying Idle in U. S., Davis Claims

"Authoritative sources" who claim there is a reserve of 10,000 combat planes in the United States are misinformed, said Elmer Davis, Director of War Information, in his weekly broadcast Apr. 9.

Davis spoke only a few hours after newspapers had carried a report, emanating from Allied headquarters in Australia, that "a pool of 10,000 bombers and fighters, over and above lend-lease commitments and assignments to various fronts" is retained in this country. The report came from "an authoritative source."

"Obviously, if there are 10,000 planes lying idle here at home, it would seem that we could spare quite a lot of them for Australia," he said. "Well, the only trouble with that argument is that it simply isn't so.

"The exact number of combat planes in this country is, of course, a military secret. But they are not lying idle. Some of them are needed for the sea-frontier—the steady patrolling to watch for submarines, which have again begun to appear in the neighborhood of our coasts, and which might appear in larger numbers if there were no air force at home to hit back at them.

"Other combat planes in this country are just about to be sent off to the fighting fronts. Still others—a considerable number—are used for training."

Davis stressed the importance of teaching a trainee to fly "the kind of plane he is going to fight in." A pilot only begins training in a training plane, he explained.

"You can't make him learn at the front," he said. "If you do, he won't last long. The training of bomber crews is a particularly complicated matter, and if you send them off before they have learned their trade you are likely to lose both crew and bomber."

Davis declared "there simply are not enough planes to meet every man's needs." He said it was natural that General MacArthur and Prime Minister Curtin should want more planes in Australia, but "every commander in every theater can put up a perfectly sound argument why he ought to have more."

Long-term strategic plans dictate where the planes will be most useful, he added.

To make sure his remarks would not be interpreted as criticism of MacArthur, Davis singled out the General for praise.

"General MacArthur is going to get more planes—Secretary Stimson promised that yesterday—and his fliers will use them well," he said. "In the recent operations in the Bismarck Sea and at Kavieng, they inflicted great damage on the enemy with comparatively few planes. Give them more and they will do even better."

During the past week, many Washington observers have expressed the belief that either a member of MacArthur's staff, or one of his authorized spokesmen, gave the information to the press to build up public opinion for more aerial support for the general.

Some observers have persisted in believing a pool of planes does exist and that Secretary Stimson will draw the planes for MacArthur from this reserve. They believe the pool explains the mystery expressed widely in the past six months as to where all of the nation's aircraft go.



Guardian of the Sea: This new photo shows one of Britain's giant Sunderland flying boats preparing to take off on patrol duty off the North African coast.

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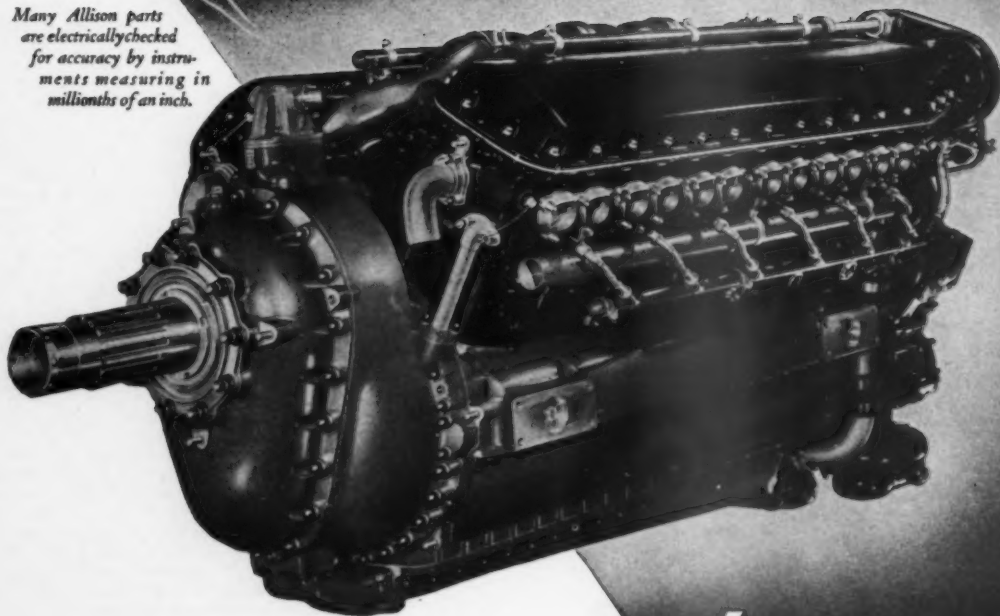
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War Agencies Review

A NEW BILL OF MATERIALS BOOKLET is to be ready for distribution early in May. This is an "A. B. C., step-by-step" outline of procedure and will supersede the General Instruction booklet issued Nov. 14, 1942. Many of the suggestions made by the Automotive Council for War Production are said to be included. WPB officials claim that the booklet will permit the CMP Division to get complete bills from prime contractors in highly repetitive programs, of which aircraft is a leading example.

AAF officers claim the aircraft industry is still not geared up to order materials far enough in advance to allow sufficient time for steel melting processes. On the other hand, industry leaders state that much of the time lag has been caused by constant changes in models.

Allotment symbols have been assigned to the various claimant agencies "to identify the allotment of controlled materials for the third quarter of 1943."

List of Class B products has been increased but not yet made public. Producers of Class B products received a circular explaining the application of allocation control on steel, copper and aluminum to the manufacture of common components during the third quarter of 1943, during which time allocation is programmed to replace PRP. An entirely new set of Class B Product symbols has been assigned to items falling within the jurisdiction of the various Industry Divisions.

Aluminum rod and bar ordered through both PRP and CMP for the month of April will be received by manufacturers. However, orders placed for the first quarter are not delivered unless the consumer assigns CMP allotment numbers by Apr. 30, or unless delivery has been received prior to that date. If allotment numbers were assigned to backlog orders, consumers are not to be given an allotment for May or June. In effect, according to Direction 2 of CMP Regulation 1, manufacturers who need aluminum rod or bar must choose between past orders placed and not delivered, or future orders for May or June.

About 15,000 manufacturers working on principal war contracts during the past few weeks have received a new questionnaire which combined two previous ones and which is designed to simplify reporting to WPB. It was mailed with a letter from Charles E. Wilson, WPB executive vice president, and said in part: "The data required . . . are of utmost importance for overall policy determinations affecting the conduct of WPB and for remedying conditions which limit the full utilization of our industrial plant for essential production. The information here requested is regarded as sufficiently important to our joint effort . . . to warrant our decision that compliance with this request be made mandatory."

Warning that the flow of materials into war production is threatened by failure of some manufacturers who have received allotments under CMP to pass on authorizations in proper form to their suppliers, WPB urged immediate compliance.

The steel inspection order which has caused repercussions throughout war industries does not directly affect aircraft manufacturers, WPB officials state. While a pinch has been felt in plate steel, alloy steel production has not been affected.

In a move interpreted to strengthen the Civilian Supplies section, WMC Chairman McNutt, ODT Director Eastman and Petroleum Administrator Ickes have been made members of the War Production Board.

Issue number 8 of the Material Substitutions and Supply List has been released for the purpose of guiding industry in the conservation of more critical materials through substitution of less critical and non-critical materials.

While personnel with aviation background has been severely reduced in the War Production Board, it is learned that aircraft requirements in plastics will continue to be supervised by Ward Jackson, a chemical engineer with aircraft experience.

DRASTIC CHANGES IN SELECTIVE SERVICE CLASSIFICATIONS, including abolishment of III-B were announced. The revised classifications for Selective Service registrants now are:

- I-A—Available for military service.
 - I-A-O Conscientious objector available for noncombatant military service.
 - I-C Member of land or naval forces of the U. S.
 - II-A Man necessary in his essential civilian activity.
 - II-B Man necessary to the war production program.
 - II-C Man deferred by reason of his agricultural occupation or endeavor.
 - III-A Man with child or children deferred by reason of maintaining bona fide family relationship.
 - III-C Man with dependents who is regularly engaged in agricultural occupation or endeavor.
 - III-D Man deferred because induction would cause extreme hardship and privation to a wife, child or parent with whom he maintains a bona fide family relationship.
 - IV-A Man 45 years old, or over, who is deferred by reason of age.
 - IV-B Official deferred by law.
 - IV-C Neutral aliens requesting relief from liability for training and service, and aliens not acceptable to the armed forces.
 - IV-D Minister of religion or divinity student.
 - IV-E Conscientious objectors available for work of national importance.
 - IV-F Physically, mentally, or morally unfit.
 - IV-H Men 38 to 45 now deferred because their age group is not being accepted for military service. (This group is being reclassified in case of eventual call.)
- Activity and Occupation Bulletin No. 33-4, originally issued Mar. 1, has been amended and re-issued. Covered is the policy governing personnel in educational services, such as Armed Forces contract flying, ground schools and factory aviation schools.

A 50% REDUCTION IN LABOR TURNOVER is predicted by WMC Deputy Chairman Harper as a result of the Manpower Commission's wage restrictions on job transfers. While admitting that labor turnover has been "one of the worst manpower menaces to war production," he said some of the turnover is necessary and desirable, particularly when it involved transfers from non-essential to war industries.

The Commission has called the attention of war manufacturers to the large number of registered aliens not yet being used most effectively in many labor shortage areas. Little red tape is necessary, WMC declared, for employment of aliens except in connection with a "classified" contract, marked "secret, confidential or restricted."

In connection with the wage order freezing essential war workers in their jobs, a revised list of 35 essential industries and activities, headed by Production of Aircraft and Parts, was issued.

Lt. Gen. William S. Knudsen suggested that industrialists cooperate with the Manpower Commission by pooling labor resources. Production schedules for different areas should be broken into separate periods, he advised, and labor units for each period arranged for in advance.

Sir Roy Fedden Lauds U. S. Aircraft Output

American airplane production methods and developments were highly praised by Sir Roy Fedden, chairman of the 10-man British air mission which recently made a three-month study of aircraft production in the U. S., when he returned to London and reported to Sir Stafford Cripps, Minister of Aircraft Production.

Sir Roy said that the strides made by the industry "far exceed the scope of human vision of only two years ago." His mission was authorized to study and report on methods and designs which could be usefully adopted in England.

He told the British that U. S. manufacturers now have "several engines, on the bench and projected, far in excess in horsepower of anything at present known."

Boeing and Consolidated, he reported, are going into production of bombers which will carry twice the bomb load of the best current types and will travel farther and faster than the best of the present British bombers. "We are putting in a strong recommendation that the RAF use one of these types," he announced.

In addition he called attention to improved versions of the Mustang, Curtiss P-40 and Airacobra and a new Douglas fighter which he said was better than the Nazi Focke-Wulf 190 up to 15,000 feet.

"Resiliency is one of the finest factors in the mammoth effort Americans are making," he was quoted as saying at a press conference. "They haven't anything to teach us English in regard to engine production, but we can learn a lot in other directions."

"The scale and lavishness of American aircraft tooling is really astonishing, but some of the automobile people are given to over-tooling, thinking aircraft production is more stabilized than it is in reality."

In traveling more than 10,000 miles through the U. S., Sir Roy said, "Doors were thrown open to us everywhere, and we found nothing but frank cooperation, kindness and hospitality, not only from our colleagues of the industry, but also from Army and Navy authorities."

Ward Heads East Coast War Production Council

J. Carlton Ward, Jr., president of the Fairchild Engine & Airplane Corp., New York, N. Y., was



Ward

was elected president of the Aircraft War Production Council, East Coast, Inc., at the regular April meeting. He succeeds Glenn L. Martin, president of the company which bears his name.

The board of directors elected Lawrence D. Bell, president of the Bell Aircraft Corp., Buffalo, N. Y., as vice-president. He and Ward will serve for a period of four months beginning May 1. Both are directors of the National Aircraft War Production Council, Inc., formed early in April after conferences between the East and West Coast regional councils.

Details of Tokyo Raid

(Continued from page 26)

carrier and planes had to take off on the upbeat. The plane piloted by Lieutenant Travis Hoover was thrown in such a way that it threatened to fall off on a wing, but Hoover's good piloting saved it.

The first take-off was at 8:20 A.M., ship time, with General Doolittle piloting the lead plane. It was at 9:20 P.M. that the General was to bail out over China, the last to leave his plane. Much happened in the interval.

The planes wheeled in the sky and headed toward Japan. It was fairly good flying weather and the sun was bright noon as the flyers discerned the coast line. They came in almost skipping the waves, at fifteen or twenty feet above sea level. The low-level flying bore out expectations. The planes were not spotted until they had almost reached their targets. The Japanese were taken entirely by surprise and the presumed warning from the Japanese patrol vessels had not produced an inkling of the American plan to bomb the targets in Japan.

Lieutenant Travis Hoover led one flight of planes over the northern part of Tokyo. Captain David M. Jones led another flight over the central part of the city. Captain Edward J. York took his flight over the southern part of the city and part of Tokyo Bay. Major Greening led a fourth flight over Kenegawa, Yokohama City, and the Yokosuka Navy Yard. Another flight of planes went south of Tokyo and split up to bomb military installations at Nagoya, Osaka and Kobe.

General Doolittle has told how his plane skimmed the roof tops of Tokyo so low that he could even see the surprised faces of Japanese on the streets. At one point a ball game was in progress and the spectators scurried for cover only after the planes had passed. The Americans climbed to 1500 feet for the actual bombing, lest the explosions otherwise destroy their own planes.

There was some attempt by Japanese pursuit planes to intervene. Major Charles R. Greening who piloted one of the planes has told of new type Japanese ships which sought to intercept his plane

near Tokyo. Major Greening hugged the ground and even flew under some power lines in the hope that the enemy ships would crash into them. They did not, but Major Greening's plane shot down two of the Jap planes. The Major's objective was a gasoline refinery and storage works. The dropped bombs produced sheets of flame and a terrific explosion that banged the heads of Major Greening and his co-pilot against the top of the cockpit. Nearly 50 miles away they could see flames and smoke to the rear, rising from the gas works.

Lieutenant Colonel John A. Hilger, leading the raid on Nagoya, encountered inaccurate antiaircraft fire, and proceeded to bomb and hit an aircraft works, an oil storage warehouse, an arsenal and barracks.

One by one, each objective of each plane was checked off. Now it was a tank factory, now a shipyard with a cruiser in it, now an airplane plant. The explosions and also the flames from incendiary bombs wrecked steel plants, powder factories, machinery works, railroad yards and sidings, docks, arsenals and oil refineries. Direct hits were made on a new cruiser or battleship under construction.

Planes arriving over Tokyo after the first bombings met heavy antiaircraft fire, but no real damage was done to any of the bombers. Flames and columns of smoke leaping several thousand feet into the air marked the trail of the American planes.

Even though the attack on Kobe came probably an hour after the raid had started on Tokyo, it seemed to be a complete surprise to the people on the streets.

More than 30 Japanese pursuit planes were observed during the raids. They were ineffective at interception and several were shot down.

The antiaircraft fire of the Japanese did little damage. When shooting at one of our airplanes, they shot down one of their own barrage balloons which were flying in small numbers.

By order of General Doolittle, no attack was made on the Japanese Emperor's

Palace, although it was in sight of the flyers. It was not a military objective.

It was upon leaving Japan that the most hazardous part of the venture was reached. The scattered airplanes ran into a storm. Their already depleted gasoline reserves were drained further as they bucked the winds. Darkness was coming on and the unfamiliar terrain added to the difficulties. There were no light beacons or landing flares. Unable to go farther, there in the darkness 6000 to 10,000 feet above a strange land, the great majority of the men bailed out.

Most of the men landed in unoccupied China and made their way to Chungking. But some of them landed in the occupied region. This led to the capture of eight. Others made their way out, with the aid of friendly Chinese. Several of them hid away for an extended period until they could escape to the free territory of China. Two of the men are still entirely unaccounted for.

Seven men were injured in crashes but survived. One was killed. Corporal Leland D. Faktor's parachute opened but he landed in mountainous territory and may have suffered a secondary fall. He was found dead.

The plane piloted by Captain York bombed Tokyo but had so little gas left that it made for Siberia and landed 40 miles north of Vladivostok. The plane was landed safely and the crew was interned.

The crews of two planes came down close to Japanese positions. They contained the men listed as missing or presumed to be prisoners of war.

Lieutenant Charles J. Ozuk, navigator on the same plane as Corporal Faktor, was injured, as were Lieutenants Ted W. Lawson, Dean Davenport, Charles L. McClure, Robert S. Clever, Harold F. Watson, and Corporal David J. Thatcher. All survived.

In this connection, Corporal Thatcher was cited for his initiative and courage in tending his companions after their plane crashed in the water. This aircraft piloted by Lieutenant Lawson landed in the China Sea with a shock which seriously injured him and the other crew members. Thatcher, although badly cut on the head and momentarily knocked unconscious when the plane hit the sea and turned over, nevertheless swam back to secure the medical kit from the crashed plane. He was the only one physically able to carry it.

After it became plain that any further wait would result in capture by the Japanese forces, which were only about three miles away, Thatcher persuaded Chinese fishermen to carry his injured crew mates to temporary safety around the Japanese outposts. Chinese villagers carried his companions over mountainous and difficult terrain until they reached medical aid. All of this plane's crew were saved either from capture or death as a result of Corporal Thatcher's initiative and courage in assuming responsibility and tending the wounds himself day and night, and arranging for the transportation of his companions.

Lieutenant J. R. White, flight surgeon who flew in the plane piloted by Lieutenant

(Turn to page 34)



Official U. S. Navy Photo

Tokyo Bound: One of Maj. Gen. James H. Doolittle's North American B-25 bombers leaves the flight deck of the USS Hornet and heads for Tokyo.

Bob put it on paper



The clock on the wall pointed near midnight. It was 16 months after Pearl Harbor; the nation was deep in war. At Rochester Airport a light shone in the Operations Office of American Airlines. Agent "Bob" Storandt had something on his mind that wouldn't stay down. So he wrote a letter to his boss. From his boss it went to others and finally, in the Company's magazine, to pilot and porter, to engineer, stewardess—to everyone on American's far-flung system and to its men and women on leave in the Armed Forces. We publish it here because we believe it expresses the kind of thinking that motivates so many of American Airlines men and women in these times. Not all, like Bob, have put their thoughts on paper. But by giving extra of their time and talents in daily tasks they are underwriting what Bob says here—and that IS important.

"NO one can predict the minute the war will end. But in the final minute of fighting, hundreds—or even thousands—of casualties will result.

"We, in air transportation, have always been time-conscious. Probably the most important commodity we sell is 'time saved.' And just as our primary peacetime job has been the saving of minutes, so our primary role in wartime is the saving of 'war minutes.'

"We of American have never before been assigned so tremendous a responsibility. It is the task of seeing how many minutes we—individually and collectively—can lop off the end of the war. It is an assignment that applies alike to every department, and to every individual employee. There is no way, of course, in which we can determine how many minutes we can shorten the war, but if all of us—together—put forth our best efforts in our particular jobs, the inevitable result will be a maximum of time saved.

"The 150-pound piece of express that is loaded at Detroit tonight, the businessman who flew out of Memphis yesterday morning, the ferry pilot who will board at Boston tomorrow; these and others like them are our implements for speeding the day of Peace. The men and materials we are flying in wartime American could be appropriately labeled 'Handle With Care,' because only insofar as we give them the best possible service

are we meeting our complete and urgent obligations to the nation.

"Conversely, if through negligence and mishandling we subject our passengers and cargo to unnecessary delays, we are delaying the minute the war will end.

"This vastly important job of ours is not up to our President. It is not up to the General Office. It is not up to our Station Managers. It is up to the Operations Agents in Los Angeles, the reservations personnel in Mexico City, the mechanics in New York, the stenographers in Treasury, the radio operators in Chicago, the flight personnel in Dallas.

"American's organization closely parallels that of a military organization. We have our top officers, our General Staff, our field officers and men, our services of supply, our communications system, and other comparable units. An army does not function at top efficiency merely because it has a good General Staff, or a scattering of good fighting men; its operating strength is measured by the cumulative efficiency of all of its members. That is also true of American.

"We know the job we are capable of. The assignment is clearly drawn. The American standard of service is on trial now in a nation at war. It's up to you, up to us."

AMERICAN AIRLINES *Inc.*
ROUTE OF THE FLAGSHIPS

Use of Landplanes for Postwar Air Cargo Service Predicted

Present indications are that the landplane will completely overshadow the flying boat as a postwar cargo carrier, it was unanimously agreed at a recent hearing of the House Naval Affairs Committee.

"If the war ended now the tendency would be completely toward the landplanes," Artemus Gates Under-Secretary of the Navy for Air, reported.

On the basis of present necessity, however, Gates supported the Navy's request for authorization to purchase Pan American's seaplane base at Dinner Key, Fla., as a take-off point for cargo service to Africa, but staunch opposition to the proposed purchase came from members of Naval Affairs.

Congressmen seemed inclined to believe that the Navy's purchase of the base would free PAA to shift to a landplane enterprise and leave the Navy "stuck" with a less promising seaplane enterprise for cargo operations in the post-war period. At a previous hearing, Rear Admiral Ben Moreell, Chief of the Bureau of Yards and Docks, supported the purchase because Dinner Key has "a great potentiality as a base for commercial seaplane communications with Caribbean, Central American and South American countries in what is certain to be a highly competitive international post-war market."

Chairman Carl Vinson (D., Ga.) pointed out that the Navy is now operating 10 flying boats from the base and proposes to invest \$2,500,000 to increase its service to 12 flying boats or to a maximum of 18 within a year. He suggested that the Navy use the base under rental arrangements with PAA for the present, and develop its already-owned base "seven or eight miles" from Dinner Key for land cargo plane service. Rep. Melvin Maas (R., Minn.), ranking minority member of Naval Affairs, concurred, advocating that the Navy "get the landplanes from the War Dept. and develop that field," and use the 10 flying boats for other military purposes such as patrol.

A seaplane base will be of no use to the Navy in the postwar period, but a landplane base will be, Maas asserted.

"Isn't it true that seaplanes will have no value after the war?" he asked. Gates replied that "the Mars is the most economical cargo plane today," but admitted that "the trend is toward landplanes for cargo operations."

"Isn't it true that if the Navy could start from scratch they would purchase all landplanes for cargo . . . isn't the landplane the cargo plane of the future?" Maas queried. Although present trends do indicate that the landplane will be the post-war cargo carrier, engineering developments on seaplanes may change that trend in their favor, Gates maintained, in his effort to convince the committee it should approve the purchase of Dinner Key.

"We can't spend millions on the hope that the trend will change," Maas retorted, reprimanding the Navy for not having landplanes long ago "when they were needed in the Pacific." Even though the Navy has made progress, Maas claimed its top men are still not "air minded," and "the Navy keeps slipping back, holding down aviation." The charge was challenged by Vinson.

"How many more years will the Navy be using seaplanes for cargo?" Maas asked, arguing that the air transport service to Mediterranean ports would be much more efficient with land cargo carriers. "That will depend on the life of the planes," Gates replied.

Maas contended that purchase of PAA's base could not be justified on the ground that it would be a post-war Coast Guard unit, although the CG has reported it "could use a substantial part of the base," because it "is obvious that the CG is not interested in big cargo planes."

Gates said that the Navy's Air Transport operations from Dinner Key at present are "by suffrage" of PAA. The Navy is given use of "half a hangar," he said. There are three hangars at the base. If the Navy is authorized to go ahead with its plans to purchase the base, Gates said, PAA would continue operations there under contract with the Navy. Under those circumstances, congestion at the base would not be relieved and it would be better that PAA retain ownership and the Navy operate under contract, Vinson suggested.

House Passes Bill to Curb Earnings of Sales Agents

Legislation to curb the earnings of sales representatives for procuring government contracts has passed the House on a voice vote.

The measure will affect two types of agents in the aircraft field: (1) the agent in Washington who has been obtaining prime government contracts for one or more parts or accessory manufacturers, and (2) the agent in the field who has been representing aircraft subcontractors to prime contractors.

The bill would subject agents to the renegotiation law and authorize government departments to scale downward earnings deemed excessive. Gross earnings on government business up to \$25,000 would be allowed sales firms.



Congressional Visit: Sixteen members of the House Interstate and Foreign Commerce Committee recently visited the hangars of Pennsylvania-Central Airlines in Washington. Show above, left to right, are PCA President C. Badell Monro, Rep. Clarence Lea (D. Cal.), chairman of the committee, and PCA sheet metal workers Nova Sharp and Percy Bolton.

Truman Group Makes Final Inspection Tour

The aviation subcommittee of the Truman Committee, headed by Mon C. Wallgren (D., Wash.), left Washington Apr. 20 to make a two-week "final inspection" tour of West Coast aircraft and light metals plants before making a report to the Senate on the nation's aviation program. Accompanying Wallgren are Sen. Harley Kilgore (D., W. Va.) and the Committee's counsel, Hugh Fulton.

Officials of labor unions who have been requesting that present wage inequities in the aircraft field be corrected will be heard by the group, Wallgren said.

How production schedules are being met, what the present materials flow situation is, where bottlenecks exist, and the quality of government furnished materials used in aircraft assembly are problems of particular interest to the subcommittee, he remarked.

The itinerary includes visits to Boeing, Lockheed, North American, Douglas, Vultee, Northrop, Consolidated, a magnesium plant at Las Vegas and light metal plants in the Pacific Northwest.

Tokyo Raid

(Continued from page 32)

enant Donald G. Smith, also was commended for bravery.

Lieutenant White "at great risk of his life and with exemplary courage" remained inside the sinking plane, with water rising dangerously, until his surgical instruments and medical kit could be salvaged. The plane plunged into 100 feet of water just after he had completed this effort and escaped. Later on, Lieutenant White remained in dangerous territory tending the injuries of the crewmen of Lieutenant Lawson's plane.

The preoccupation in bringing American flyers to safety was a principal reason why no detailed statement was issued after the raid. To have named the flyers and disclosed that they were still missing would have intensified the efforts of the Japanese to capture them. Also, consideration had to be given to the possibility of reprisals on friendly Chinese who helped the Americans in Japanese-occupied China.

The initial secrecy was essential to permit the small Naval task force to elude the Japanese surface vessels which were between the American warships and the outer Pacific. As long as this secrecy could be maintained the Japanese were obliged to set up defenses against a number of possibilities. They could not be sure whether the planes had come from China, or an aircraft carrier, or some stepping stone in the North Pacific. They did not know when the attack might be repeated. Thus, the Japanese were forced to tie up part of their military strength during crucial months.

If the secret could always have been kept from the Japanese—which in the end was impossible—it would naturally have added to the tension with which Japan awaits the attacks that still lie ahead.

The B.F. Goodrich Airline of the month

PAN AMERICAN AIRWAYS

Home from the sky comes a queen of inter-continental flight . . . completing another mission laden with men and materials of war. It is with great Clippers like these that Pan American Airways System has blazed new sky trails all over the world—flightways that have proved invaluable in our present global warfare.

Like other leading airlines, Pan American flies with B. F. Goodrich equipment. Planes fly safely through dangerous icing conditions, thanks to B. F. Goodrich De-Icers. Pilots of land-based Clippers make safer, smoother take-offs and landings on

B. F. Goodrich Silvertown Tires. And B. F. Goodrich shock absorption pads, tubing, grommets and Rivnuts also travel with the Clippers.

B. F. Goodrich salutes the great planes and great achievements of Pan American Airways System, Inc. . . . "Airline of the month."

In war or peace

B.F. Goodrich

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B.F. GOODRICH RUBBER RESEARCH FOR THE

Aviation industry



B.F. GOODRICH RIVNUTS FOR FASTER AIRCRAFT ASSEMBLY



RIVNUTS are internally threaded tubular rivets accurately machined from highly corrosion-resistant aluminum alloy. By the use of special tools, Rivnuts can be pulled up while working entirely from one side, forming a bulge or head on the under side. This upset is large enough to resist being pulled through the metal skin, even under heavy load. Rivnuts may be used as a nut plate or as a rivet, or both.

No other "blind" fastener has all these features

The Rivnut offers a combination of advantages which make it unique among blind fasteners. It is extremely simple in design—in fact, the only *one-piece* blind rivet that can also be used as a nut plate after installation. It is light in weight, low in cost, quick and easy to install. Because Rivnuts upset by bulging laterally, they expand to fill the hole in the skin and have a spring effect under load. Rivnuts may be inserted in a smaller hole in the skin due to their compact design. Threads are counterbored, thus making it easy to insert the screw. When upset, Rivnuts have a wider bearing area than any other blind fastener. They are made in three screw sizes and a complete range of grip lengths.



Wide range of uses

Although developed primarily as a nut plate for the attachment of De-Icers, Rivnuts have found many other important uses in secondary and, in some cases, primary structure—in metal, plywood or plastics. These uses include: the attachment of landing and navigation light assemblies, instruments, fillets and fairings, Fowler flaps, insulation, and access doors for bullet sealing fuel cells.

Can Rivnuts help you?

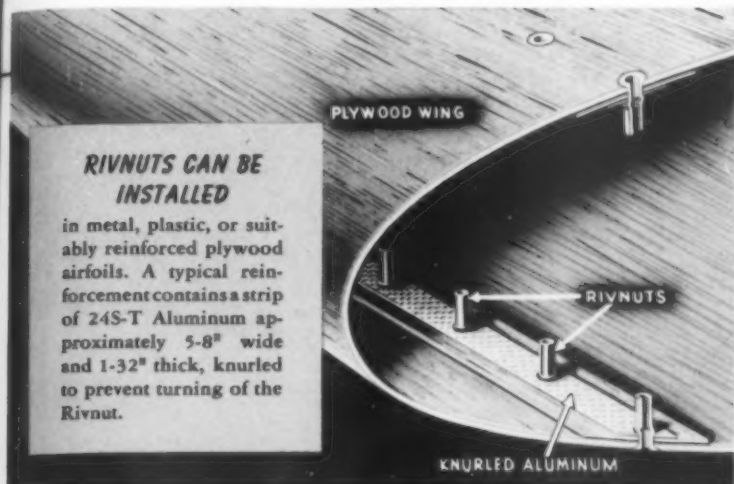
If you are engaged in aircraft manufacture or maintenance, chances are you can use Rivnuts to great advantage for applications of the type listed above, or for specialized applications of your own which require "blind" fastening. Why not tell us about any particular assembly problem you may have? We'll be glad to give you our recommendations. Aeronautical Division, The B. F. Goodrich Company, Akron, Ohio.

**MAKERS OF B. F. GOODRICH TIRES AND OVER 80 RUBBER
AND SYNTHETIC RUBBER PRODUCTS FOR AIRPLANES**



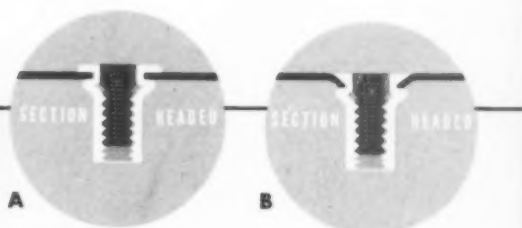
RIVNUTS SAVE TIME AND MONEY

Wherever blind fastening is needed!



RIVNUTS CAN BE INSTALLED

in metal, plastic, or suitably reinforced plywood airfoils. A typical reinforcement contains a strip of 24S-T Aluminum approximately 5-8" wide and 1-32" thick, knurled to prevent turning of the Rivnut.



CROSS-SECTIONS

showing three types of Rivnut installations. (A) Flat Head type where absolutely flush surface isn't necessary; (B) Countersunk Head type with dimpled countersink in thin metal; (C) Countersunk Head Type with machined countersink in thicker metal.

ATTACHING ACCESS DOORS

like the one shown on the left is typical of the many uses for Rivnuts in aircraft assembly. Although originally developed as a nut plate for the attachment of De-Icers, Rivnuts now are being used in the attachment of navigation light assemblies, instruments, fillets and fairings, Fowler flaps, insulation, and many others.



Drawing, showing use of Rivnuts in the assembly of cloth-covered wings, ailerons, trim tabs, rudders, elevators, etc.

RIVNUT INSTALLATION IS SO EASY

even a blind man can do it. Right now, in one of the country's leading plants, blind men are heading Rivnuts on important aircraft assemblies and doing it mighty efficiently, too. Unskilled workers can learn Rivnut installation and become highly proficient in a very short time.



GET THIS FREE BOOKLET. Contains data on Rivnut types, sizes, grip ranges, strength and weight. Installation tools are illustrated and described. For your free copy, write today (on company letterhead, please) to The B. F. Goodrich Company, Aeronautical Division, Akron, Ohio.

In war or peace
B.F. Goodrich
FIRST IN RUBBER





PRIVATE GEORGIE GREMLIN SCORED 0 ON THIS

TIRE QUIZ

CAN YOU SCORE 100%?

(Pick correct answer from a, b, and c—see end for score)

1. The weather in Africa causes tires to deteriorate faster than the weather in Russia because ...
 - a. Bright sunlight has deteriorating effect on tires. More sunlight in Africa, therefore more deterioration.
 - b. Terrific sandstorms blast tires in Africa.
 - c. Desert heat melts tires.
2. Private Jones got bawled out for spilling oil on a tire because ...
 - a. It made tire slippery.
 - b. Oil is extremely harmful to rubber.
 - c. There's an oil shortage.
3. Tires should be examined regularly because ...
 - a. The Army is compiling tread-wear statistics.
 - b. If bruises and cuts are not discovered in time and repaired, tire may blow out and cause a crash.
 - c. Treads may be slipping.
4. Tires should be repaired when cut to the cord because ...
 - a. Cords will rot; tube will be unprotected; tire may blow.
 - b. Air friction may set tire on fire.
 - c. Cords hold tire on rim.
5. Overinflation should be guarded against because ...
 - a. The President is trying to curb inflation.
 - b. Overinflation causes rapid tread wear.
 - c. Overinflation increases tire weight.
6. Underinflation is harmful because ...
 - a. It causes early failure of cord in the tire carcass.
 - b. It causes plane to bounce when landing.
 - c. It causes serious tube shrinkage.
7. Valve cores should be checked regularly ...
 - a. Because leaks often develop at the valve core.
 - b. To see if they need lubrication.
 - c. To prevent valve tap.
8. Valve caps should be on all valves because ...
 - a. They make a more streamlined appearance.
 - b. Caps keep dust, oil, and moisture out of valve; seal air in.
 - c. They are standard equipment on all Army planes.
9. Deflection ribs are placed on smooth-contour tires to ...
 - a. Measure growth of tire in service.
 - b. Measure thickness of tread.
 - c. Show when a tire is properly inflated.
10. Proper size tube should always be used because ...
 - a. Wrong size will either wrinkle and become pinched or stretch and lose air rapidly.
 - b. Too small a tube constricts the bead.
 - c. Too large a tube wastes vitally needed rubber.

WHAT IS YOUR SCORE?

Each correct answer counts 10. 1-a, 2-b, 3-b, 4-a, 5-b, 6-a, 7-a, 8-b, 9-c, 10-a.

This is one of a series of maintenance quizzes prepared for ground crew trainees of the U. S. Army Air Forces Technical Training Command. It is our hope that this series will help all maintenance men get maximum service, safety, and efficiency from military, commercial, and civilian aviation equipment.

B. F. GOODRICH AERONAUTICAL DIVISION, AKRON, O.

Skyway or Highway

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THE MARQUETTE ALL-WEATHER WINDSHIELD WIPER

Engineered FOR ALL TYPES OF AIRCRAFT



OUR FIGHT FOR FREEDOM GOES ON...
in good weather, in bad weather. Our All-
Weather Windshield Wiper provides clear sight for
all aircraft. Rain and Snow will not retard the fight!



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Boren Supports Lea Bill Proviso For Federal Control of Airspace

Seeking to pave the way for favorable House action on the Lea bill, contemplated as "The Civil Aeronautics Act of 1943", Rep. Lyle Boren (D., Okla.) recently supported Federal control of the nation's airspace—a provision of the legislation likely to be challenged on the floor by state's rights advocates.

Boren is a high-ranking member of the House Interstate and Foreign Commerce Committee which reported out the measure framed by its chairman, Rep. Clarence Lea (D., Calif.), on Feb. 11. The three top men on the Committee—Rep. Alfred Bulwinkle (D., N. C.), Rep. Charles Wolverton (R., N. J.), and Lea—are now making a re-draft of the legislation which is expected to lessen states' opposition.

Labeling the Lea bill as "one of the most important measures to come before Congress in recent years", Boren explained that it "provides for a series of highly constructive steps to strengthen our civil aviation laws in order that we may be ready to maintain and further our pre-eminent position in civil aviation throughout the world.

"Upon scarcely no other subject will the Congress have an opportunity to make such a great contribution toward a sound and progressive post-war economy".

'Tragic Mistake'

Postponement of action on the measure would be a "tragic mistake", Boren added, asserting that there are indications of "an organized move from outside the halls" to do this.

In support of exclusive Federal jurisdiction to regulate air commerce and navigation, he argued:

(1) Although there should be a "proper balance in the distribution of powers between the States and the Nation", there are certain phases of our economy which are "now generally recognized as being matters of complete national concern". Air commerce must be recognized as one of these phases, as our national banking system and the issuance of currency, shipping on our navigable waters, and radio utilizing air space, already have been recognized.

(2) Precedence is in agreement with the federalization of airspace. In 1922, "the American Bar Association and the Conference of Commissioners on Uniform State Laws both came to the conclusion that the Supreme Court would sustain the constitutionality of a Federal act regulating all air navigation." In a Supreme Court opinion (Railroad Commission of Wisconsin vs. C. B. and Q. Railroad, 1922) it was stated that "commerce is a unit and does not regard state lines, and while under the Constitution, interstate and intrastate commerce are ordinarily subject to regulation by different sovereignties, yet when they are so mingled together that the supreme authority, the Nation, cannot exercise complete effective control over interstate commerce without incidental regulation of intrastate commerce such regulation of intrastate commerce . . . is not an invasion of State authority."

(3) The Air Commerce Act of 1926 and the Civil Aeronautics Act of 1938 are both

molded with a view to Federal air commerce control.

(4) It would be impossible to have both State and Federal control of commerce in airspace. This would mean either: (a) that the State would simply parrot Federal rules and regulations, hence in effect accomplishing nothing more than additional government red-tape; (b) that the States would accept the Federal rules, but in addition have their own regulations, with the result that pilots in interstate air commerce, for example, might have to have 49 different books on air regulations relating to inspection of aircraft, etc., to operate in 48 states.

Boren stressed, however, that the Lea bill would not deprive State and local governments of all aviation activity, pointing out:

Lists Reasons

(1) It "does not impose economic regulation on the local operator of sightseeing trips who flies over the city," because "its economic regulation applies solely to commerce by air between one place and another".

(2) "Its economic regulations, and prohibition against State economic regulation, are confined to regulation of the carriage of persons or goods for compensation or hire. This would not affect the training of pilots or the carriage of one's own goods by a private carrier or any other ventures of this nature."

(3) It does not "seek to regulate in any way the airport operator. It does not provide for licensing of airport operators or for any other regulation of such persons."

(4) It does not prevent "the States from regulating aerial photography or crop dusting or any other aerial operations not constituting the carriage of goods or persons for compensation or hire." (Safety regulations applicable to air navigation would, however, be a matter for the Federal government).

(5) It "would not regulate aircraft factories . . ."

(6) It "would not prevent State or municipal construction or operation of airports nor would it prevent State or municipal zoning of hazards in the vicinity of airports."

(7) It "would not prevent State measures to foster and promote aviation," such as aviation education, etc.

"This bill, then, does not constitute complete federalization of civil aviation", Boren concluded. "It leaves ample room for constructive State activities and in important respects specifically encourages such activities. All that the bill does is to provide that the regulation of flight and the economic regulation of transporting persons and property by air for compensation or hire are to be treated as a unit, governmentally."

PORTUGUESE MISSION: A Portuguese Military-Air-Naval mission, composed of nine officers has been invited to visit the United States as guests of the War and Navy departments. The War Dept. announced Apr. 12. The mission will make an extensive tour of military and industrial establishments.

Transport Industry Wants Lea Bill With Strong Federal Rule

While the promised new version of the "Civil Aeronautics Act of 1943," H. R. 1012, was still awaited on Capitol Hill last fortnight and state's rights advocates still demanded assurance that states could control local aerial commerce within their borders, air transport industry observers were presenting the view that only exclusive federal jurisdiction would bring sound development of civil aviation.

Cited was a recently prepared memorandum for transport people on state aeronautical laws which said in part:

"When it is realized that the legislatures of 44 states meet in regular session in odd-numbered years, and those of eight in even-numbered years, and that, in their deliberations and actions they all act independently of each other, it is difficult to believe that in the years to come they will achieve any more uniformity in their state aeronautical laws than they have in the past."

'Endless Confusion'

This memorandum contended that with state conflicts of interests and ideas, it is conceivable that their efforts "unrelated to and not tied up with a specific national program" might produce endless confusion.

"The fate of aviation and air transportation in the U. S. cannot be left to 48 distinct approaches by the 48 states and to the conflicting ordinances of thousands of municipalities within the states," it said. "Only by placing in the hands of the U. S. Civil Aeronautics Authority full power to bring about unification of thought and action for broad, long range objectives can our people reap the social, political and economic benefits that lie ahead for aviation in the U. S."

Some air transport observers saw in failure to establish unified regulation a threat to manufacturers as well as operators, in that conflicting state laws might impose differing specifications upon aircraft.

It was pointed out that such states as have attempted to formulate extensive laws, provide for the setting up of rules and regulations under those laws, and that disastrous confusions may begin the moment such states start enforcing varying sets of regulations.

"It would seem fundamental to the sound development of civil aviation," runs this argument, "that there be absolute assurance that one regulatory body administering one set of regulations should have exclusive and complete jurisdiction."

These considerations were held to apply as fully to economic regulations or commercial operations as they do to safety regulations, since differing economic regulations will effect the types of equipment and the usage to which equipment can be put.

Comparison is made by the proponents of over-all Federal aviation control with the interstate barriers encountered by the motor truck industry, with the contention that anything which impedes the free flow of air commerce will prevent aviation from swinging into its full post-war stride.

Willkie's New Book Praises Air Transport

"There are no distant points in the world any longer," Wendell L. Willkie declares in his new book, *One World*. (Simon and Schuster, New York, \$1 and 2 editions) "At the end of the last war, not a single plane had flown across the Atlantic. Today that ocean is a mere ribbon, with airplanes making regular scheduled flights. The Pacific is only a slightly wider ribbon in the ocean of the air, and Europe and Asia are at our very doorstep."

Mr. Willkie is still impressed and "almost bewildered", that flying 31,000 miles took only 160 hours. "For the net impression of my trip was not one of distance from other peoples but of closeness to them. The physical business of moving from one country to another, or from one continent to another, was no more arduous than the trips an American businessman may make any day of his life to carry on his business. In fact, moving about the world came to seem so easy that I promised the president of a great Central Siberian republic to fly back some weekend in 1945 for a day's hunting. And I expect to keep the engagement."

During the days he was in Russia, Mr. Willkie inspected many factories but he comments that an "aviation plant, now located outside Moscow, remains most vivid in my memory." The plane being produced was "the now famous Stormovik, a single-engined, heavily armored fighting model which has been developed by the Russians as one of the really novel weapons of the war. It has a low ceiling, and climbs slowly, so that it actually needs a fighter escort. But used as an anti-tank weapon, traveling low and at high speed and carrying heavy fire power, it has been one of the Red Army's most powerful weapons."

"American aviation experts were with me on this inspection, and they confirmed my impression that the planes we saw wheeled from the end of the assembly line and tested on an airfield next to the factory were good planes. And peculiarly enough, they pronounced the armored protection for the pilots the best of any they knew on any plane anywhere in the world."

Not posing as an aircraft production expert, Mr. Willkie reported extensive observations of this Soviet plant, based on his general knowledge of American industry. "Parts of the manufacturing process were crudely organized. The wings of the Stormovik are made of plywood, compressed under steam pressure, and then covered with canvas."

The woodworking shops "seemed to me," he added, "to rely too much on hand labor and their product showed it. Also, some of the electrical and plating shops were on the primitive side." Excluding these sections, he found the plant compared favorably in output and efficiency with any he has ever seen.

The factory operated on three shifts with about 30,000 workers, he estimated. More than 35% of the labor force were women and many ten-year old boys were doing 66-hours of skilled labor each week.

"On the whole, the plant seemed to us Americans to be overstaffed. There were more workers than would be found in a comparable American factory. But hang-

Books

YOUNG AMERICA'S AVIATION ANNUAL: 1942-43. By Reginald M. Cleveland and Frederick P. Graham. Profusely illustrated. 240 pp. Robert M. McBride & Co., New York City. \$2.50.

This latest edition of an annual review of aviation for young people is the best in the series. It is not a revision—it's been completely done over from start to finish and the results are obvious. The scores of photographs are well chosen and well reproduced. They tell the story of the air from one phase to the last. As in past editions the text is not burdensome; it is brief but adequate. It is a pleasure to commend the authors for a job well done.

WORLD MINERALS AND WORLD PEACE. By C. K. Leith, J. W. Furness and Cleona Lewis. The Brookings Institution, Washington, D. C. 253 Pages. Illustrated. \$2.50.

This is another exploration of an important subject by solidly-thinking realists of the Brookings Institution, and the result is a

ing over every third or fourth machine was a special sign, indicating that its worker was a 'Stakhanovite', pledged to over-fulfill his or her norm of production. The Stakhanovites, strange as it may seem to us, are actually piece-workers, paid at a progressively increasing rate on a speed-up system which is like an accelerated Bedeaux system."

Russian officials admitted to him that productivity of each individual worker was lower than in the United States. Until they can make up for lack of skill by education and training, they must offset it by patriotic drives for increased output and by hiring all available labor power, even old women and children. Mr. Willkie concludes his description of the aircraft factory with the story of its being picked up bodily from its foundations in Moscow in October, 1941, when the Nazis were approaching the capital. Moved more than a thousand miles on an already overloaded transportation system, it was producing planes at its new location two months later.

"During that first winter of 1941-42," the manager told Willkie, "there was no heating in the plant. Workers built bonfires in the shops to keep their machines from freezing. There was no housing for the workers, and many of them slept next to their tools. By the fall of 1942, things were better organized with factory restaurants serving adequate and nourishing food . . . although only black bread and potatoes could be bought in the markets."

thoroughly documented treatise which should prove important, and perhaps surprisingly interesting, to engineers, research men and post-war planners in the aircraft industry.

Beginning with the basic fact that industrialism is largely based on mineral resources, the book develops the theme that control of essential mineral supplies inevitably has become a subject of international rivalry and controversy and that distribution of mineral sources will become an all-important factor in peace after the current war. Obviously, an industry as vitally concerned with mineral products as is the aircraft industry, will have much at stake.

But this theme will prove secondary to the factual details presented in non-technical language. The analysis reveals in simple outline, chart and table form the sources of production of, and the international trade in, the principal mineral raw materials; the present mineral position of leading countries and areas; the mineral production of the U. S. as compared with the rest of the world; and the mineral position of the two great belligerent groups in the present world struggle.

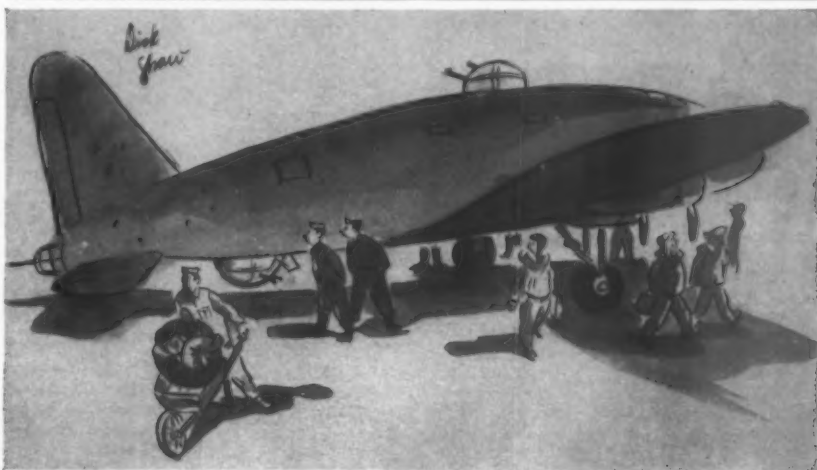
Finally, consideration is given to the geographical shifts now under way—as a result of new explorations and discoveries and the exhaustion of older resources, the development of new technologies, and the use of substitute materials—and the bearing of these changes on the mineral picture of the future. The conclusion is reached that no nation can become self-sufficient in minerals and that there will be no lessening of the interdependence of nations for mineral supplies.

The chapters on commercial policies dealing with tariffs, quotas and quantitative restrictions and exchange controls, and on international control through monopolies and cartels will prove especially interesting. The appendices, with complete tables on world and U. S. output of all important minerals, will be invaluable references for many manufacturers.

PROCESS PRACTICES IN THE AIRCRAFT INDUSTRY. by Frank D. Klein, Jr.; McGraw Hill Book Co., Inc., N. Y. C., 1942; First Edition; \$2.75; 266 pp.

In his attempt to fill the need for a process, methods and materials text, the author has divided his book into five sections: Characteristic Aircraft Raw Materials; Aircraft Metals in Production; Aircraft Fabrics and Compositions; Aircraft Process Material; Standard Process Methods. In keeping with the author's purpose and title choice, more than half the book is taken up with the last of the five sections. He covers such detailed points as steel heat treatment, production use of zinc chromate primer, anodic treatments, physical testing methods, etc.

In general it may be said that the author has a firm grounding in his subjects. We feel that in some cases explanations might have been more comprehensive and other processes might have been added to give a more rounded whole. However, there is no doubt the volume has a specific value for technical and semi-technical personnel in the industry.



Monro Criticizes Airlines' Lack of Adequate Postwar Program

Asserting that the air transport industry is "largely occupied with internecine disputes and self-seeking activities," C. Bedell Monro, president of Pennsylvania-Central Airlines, stated on Apr. 26 that the airlines have not yet formulated a constructive postwar program.

Speaking at a dinner in Washington given by the National Aeronautic Association in honor of PCA's 16th anniversary, Monro accused the airlines of concerning themselves "with too many predictions as to the glowing future of aviation," and added that there has been too much "vision of the marihuana type, not of the practical type upon which real progress is made."

Too much criticism is being directed to government regulatory bodies and bureaus for lack of foresight, despite the fact that the industry has lacked the foresight to form a constructive program, he said.

"The public," he continued, "has been lead to believe that the age of tomorrow will be an air age in which every other form of transportation will be subordinate to the airplane; that railroads, steamship lines, bus lines will be pitiful remnants existing on the disregarded crumbs from the airlines' table. That instead of a chicken in every pot and a car in every garage, there will be an airplane on every roof and a porterhouse steak on every stove . . ."

"Unless facts replace fiction there is a grave danger of public disillusionment which will be most harmful to a necessary sound aviation growth."

Urging the industry to "stop daydreaming" and without further delay recognize its postwar obligations, he listed as desirable:

1. The encouragement and development of private flying—not merely lip service encouragement, but something active to provide low-cost service, overhaul and maintenance.

2. The increasing of air transport services at rates for passengers and cargo below present levels.

3. The assuming of responsibility by the airlines for taking over from the Army, after the war, such military transport operations as economic reasons justify for continuance as commercial projects, so as to preserve a continuity of American flag transport throughout the world.

4. The development of these important activities to cushion the economic impact of war termination.

The recent flood of thinking on postwar air expansion was described by Monro as an "industry already quarreling over the scraps before the dinner has even been brought to the table." He alleged that the industry is ignoring such factors as payloads, weather, lack of bases, and other needs for economic operations.

"International thinking," he said, "is reminiscent of the gold rush of '49 except that very few remember how few found gold and how many lost their fortunes and their lives."

Foreseeing few financial reserves because of the high taxes paid by the industry, Monro called attention to the possibility of much unregulated competition from one-man, one-airplane com-

panies which will spring up after the war. While calling competition necessary, he expressed the opinion that such operators would not only "destroy themselves, but orderly progress in their destruction" without inter-state and intra-state regulation.

He also predicted competition from railroads, bus and truck lines, who will seek to add air transport divisions.

"The result can be chaotic unless a government policy is set forth and adhered to regardless of pressure," he said, adding that without these legal safeguards the industry would either require "vast subsidies" or would fall of its own weight.

CAA Reduces Width of Civil Airways

Civil airway widths have been cut in half to facilitate flight training by the armed services while maintaining safety along commercial routes, the Civil Aeronautics Administration reported April 8.

Heretofore, federal airways have been 20 miles wide. Planes flying them have been required to file flight plans with CAA traffic control centers. With hundreds of short flights from Army, Navy, and other training fields impinging upon small portions of airways daily, clearing of individual flights would place an excessive burden on each training operation. The CAA has, therefore, designated 10 miles as the official airway width, it was announced by Charles I. Stanton, CAA administrator.

The new width was agreed upon by the Interdepartmental Air Traffic Control Board, of which Earl F. Ward of the CAA is chairman, and on which the Army, Navy, and Civil Aeronautics Boards are represented.



War Sacrifice: Although Western Air Lines has just moved into brand new headquarters, it has to be satisfied with old-fashioned telephones, new ones being unobtainable because of the war. In the photo, WAL President William A. Coulter poses with one of the old timers.

United and Eastern Ask Lines to Boston

Entering the fight for routes into New England, United Air Lines and Eastern Air Lines last fortnight filed applications with the Civil Aeronautics Board for permission to operate between New York and Boston.

United asked to conduct operations via Hartford, while Eastern sought to fly nonstop and also via (1) Stamford, Waterbury and Worcester, (2) Stamford, New London, Newport and New Bedford, and (3) via such other points as the Board may find in the public interest.

Eastern asserted that it would use DC-3s now owned or to be acquired by it, "or more modern aircraft if such be available at the time it is authorized to provide such service."

Commenting on his company's application, UAL President W. A. Patterson said: "While United Air Lines does not favor the principle of direct paralleling of competitive routes, our company does believe that direct one-company service between cities on its route and Hartford and Boston is essential, and the establishment of such a route to be operated by United is in the interest of public convenience and necessity." United also would use Douglas equipment on the route.

The company also has on file an application for a route from Boston to Cleveland, denial of which has been recommended by CAB examiners.

Twin Cities-Chicago Line Sought by MCA

A route from the Twin Cities to Chicago via Rochester, Dubuque and Rockford was sought in an application filed with the Civil Aeronautics Board by Mid-Continent Airlines on Apr. 23.

"There is active competition along most of the important air routes in the country, but none along this route, and if the proposed service results in some measure of competition, this will not be contrary to the public interest," the application said.

MCA proposes three round trips daily during the first year of operations, increasing to seven trips in the fourth year.

Without including mail pay, the company estimates that it will incur losses of \$104,696.34 and \$47,855.05 in the first two years, but will show profits of \$21,529.72, \$141,197.25 and \$201,205.10, respectively, in the following three years.

WAL Takes More Space

Western Air Lines has leased the entire eighth floor of the Guaranty Bldg., Los Angeles, Cal., for its executive offices and departments of personnel, accounting, research, auditing, payroll, and military cargo auditing, President William A. Coulter announces. The company's operations department remains in the original executive quarters in the Lockheed Air Terminal, Burbank, Cal. General traffic offices remain at 510 W. Sixth St., Los Angeles.

NORTHEAST AIRLINES, Inc., Boston, Mass., has changed its fiscal year to coincide with the calendar year in order to conform to the periods of accounting practiced by the Civil Aeronautics Bureau. Previously, the company's fiscal year ended on June 30.

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WHAT DO YOU MEAN

medium **bomber!**

There's nothing "medium" about our American medium bombers but their size. For example, the Vega Ventura can bomb accurately from high-level flight—swoop down on its target for low fast attack—strafe troop concentrations—blast tanks—tow gliders loaded with men and supplies, and tow high speed targets for our fighters to practice on—a combination of tasks no other medium bomber can do.

Then, too, the Ventura patrols thousands of miles of cold gray ocean to drop depth charges when it finds a sub—carries torpedoes to attack enemy ships—plants mines to trap them. What do you mean, "medium" bomber!

The Ventura has the same basic qualities of *all* Lockheed and Vega planes, *extra* strength and *extra* dependability. That's why the Canadian, British, Australian and U. S. Army and Navy Air Forces are all using Venturas—lots of them.

A subsidiary of Lockheed

Vega

Aircraft Corporation



Lockheed Hudson
Medium Bomber



Lockheed P-38
Lightning Fighter

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Actions of the Civil Aeronautics Board

Order No. 2165, Mar. 1, 1943: Directed that Pan American Airways, Inc., and Pan American Grace Airways, Inc., be permitted, during the period Mar. 1, 1943 to Aug. 31, 1943, to maintain continuous white rear position light instead of the flashing rear position light required by Civil Air Regulations, Section 15.2015.

Order No. 2172, Mar. 5, 1943: Revoked private pilot certificate No. 94315, held by Edward Hoadley, for a series of alleged violations of the Civil Air Regulations.

Order No. 2173, Mar. 5, 1943: Suspended for 90 days private pilot certificate No. 164299, held by Duff L. Floyd, "and thereafter until the Administrator shall have issued a waiver of physical standards," for alleged infractions of the Civil Air Regulations.

Order No. 2183, Mar. 10, 1943: Revoked student pilot certificate No. 449752, held by Lee Wenner, for performing "acrobatic maneuvers . . . at a height of less than 1500 feet over a congested area," and for other alleged violations of the Civil Air Regulations.

Order No. 2184, Mar. 10, 1943: Suspended for 30 days student pilot certificate No. S-358655, held by Herman E. Lever, for alleged infractions of the Civil Air Regulations.

Order No. 2190, Mar. 16, 1943: Suspended for eight months student pilot certificate No. 254025, held by Charles D. Gunn, because of what it claims were several violations of the Civil Air Regulations.

Order No. 2191, Mar. 16, 1943: Revoked student pilot certificate No. S-450683, held by Herbert E. Meredith, for carrying a passenger "who was not a certificated instructor," and for another alleged violation of the Civil Air Regulations.

Order No. 2192, Mar. 16, 1943: In the case of E. E. Basham, Sr., holder of airline transport pilot certificate No. 2440, designated Kenneth K. Johnston, or any person named by him to take depositions of Homer John Rader and Samuel Robert Ross at the office of the Regional Manager for the Administrator of Civil Aeronautics at LaGuardia Field, New York, at 10 a.m., March 23, 1943.

Order No. 2193, Mar. 17, 1943: Revoked student pilot certificate No. 383518, held by Victor L. Gelsen, for alleged infractions of the Civil Air Regulations.

Order No. 2194, Mar. 17, 1943: Revoked private pilot certificate No. 137221, held by John H. Kendall, for what it claims were several violations of the Civil Air Regulations.

Order No. 2195, Mar. 17, 1943: Revoked mechanic certificate No. 17546, held by Gunnar V. Moeller, for alleged "carelessness . . . and disregard for the Civil Air Regulations."

Order No. 2202, Mar. 25, 1943: Temporarily exempted Harold Gillam from such provisions of section 401 (a) of the Act (1938) as would prevent Gillam from engaging in air transportation to and from Farewell, Alaska, as an intermediate point in route between Fairbanks and Bethel, Alaska, exemption to continue for six months.

Order No. 2198, Mar. 19, 1943: Directed Pan American Airways, Inc. division formerly Pacific Alaska Airways, Inc., to show cause why the Board should not make final its findings and conclusions that no additional compensation be paid for transporting mail on Pan Am's routes between Seattle, Wash., and Fairbanks, Alaska, via Juneau, Alaska, and Whitehorse, Canada, and intermediate points, and between Fairbanks and Nome, Alaska, for the period ending Aug. 31, 1942, and that no rate of compensation be fixed for such transportation on and after Sept. 1, 1942 until further order. Also, directed that Part II of Pan Am's statement be withheld from publication.

Order No. 2203, Mar. 22, 1943: Directed that the Board, on its own motion, investigate the advisability of extending air service to communities where heretofore, for economic or other reasons it has not existed, and to consider ways of coordinating such proposed services with those that now exist, and assigned this proceeding for hearing before an examiner of the Board.

Order No. 2204, Mar. 29, 1943: Approved the holding by R. E. Woodruff of a directorship in Railway Express Agency, Inc., and in several other transportation enterprises.

Order No. 2205, Mar. 29, 1943: Revoked, 30 days from date of order, authorization for suspension by Mid-Continent Airlines Inc. of service on its route No. 26, to and from Watertown, S. D.

Order No. 2211, April 2, 1943: Amended and superseded Order No. 2088, dated Dec. 28, 1942, and approved the holding by Russell L. Snodgrass of position as director of Railway Express Agency, Inc., and in several other transportation enterprises.

Order No. 2186, Mar. 8, 1943: Directed change in Uniform System of Accounts for International Air Carriers (CAB Form 2380 Manual), in amendment No. 1.

Order No. 2189, Feb. 26, 1943: Directed with approval of President Roosevelt that temporary certificate of public convenience and necessity be issued to Pan American Airways, authorizing air transportation between the intermediate point Guatemala City, Guatemala and the terminal point New Orleans, La., via the intermediate point Merida, Mexico, for a period of three years. At the same time, denied Pan Am's application in all other respects, and denied application of American Export Airlines in all respects.

Order No. 2196, Mar. 18, 1943: Modified and released to the public order and opinion of Aug. 24, 1942, which fixed mail rates on Northeast Airlines' route No. 27.



Attend AAA Dinner: Members of Congress through whose districts All American Aviation's pickup lines operate held their second annual dinner in Washington recently. Post Office and CAB officials were also present. Shown above, left to right, are Rep. James E. Van Zandt (R., Pa.); Harry R. Stringer, AAA vice president; Roy Martin, superintendent of air mail; Rep. Daniel A. Reed (R., N. Y.); Rep. John Taber (R., N. Y.); Richard C. du Pont, AAA president, and Rep. Jennings Randolph (D., W. Va.), "legislative father" of the pickup system.

BOA Flew 10 Million 'Priority' Miles in '42

British Overseas Airways' flying boats and land planes flew about 10,000,000 miles in 1942 in an aggregate flying time of about 67,250 hours, the British Air Ministry reports. Forty-three thousand passengers, 850 tons of mail, and 2,250 tons of freight were carried.

The aircraft flew unarmed and frequently went through war areas in order to deliver priority passengers or freight, the report stated. Flying boats are maintaining services between Baltimore and the United Kingdom, Baltimore and Lagos, to and from Lagos and the United Kingdom, between Britain and Lisbon, across Africa to the Middle East, and from South Africa to India. Land planes are flying on the return ferry service between Britain and Canada, and maintaining service between the United Kingdom and Eire, between Britain and West Africa and on to the United States, between the Middle East and Persia and Iraq, and between the Middle East and various parts of Africa.

There is a route between Africa and Madagascar and a "desert service" between Cairo and the Western Desert.

\$190,593 Profit Reported by C & S for 6 Months

Chicago & Southern Air Lines, Inc., has reported a net income of \$190,593 for the six months ended Dec. 31, 1942, after depreciation, interest, federal and state income taxes, etc. No provision for excess profits taxes was required, said a company statement. Net income for the six months ended June 30, 1942 was \$87,126.

Chicago & Southern estimates that the 10% cut in passenger fares proposed by the Civil Aeronautics Board would cause an estimated annual reduction of \$160,000 in passenger revenues, and the proposed cut to .3 mill per pound mile for air mail would cost the company an estimated \$360,000 yearly, said Carleton Putnam, president.

Gross revenues increased 5.2% in the final half of 1942 despite the 18.5% decline in revenue miles flown, he added. One-third of the line's planes were militarized late in the first half of the year.

PCA Flies Two Million Miles in Nine Months

More than 2,000,000 miles, including training mileage, were flown by Pennsylvania-Central Airlines in the last nine months of 1942, it was reported at the annual meeting of stockholders Apr. 21. Training activities included flight instruction and courses for navigators, radio operators, flight engineers and mechanics, it was explained.

Personnel and shop capacity were taxed during the latter months of 1942 by maintenance, overhaul, and modification work for the Army Air Forces. Organization and facilities are being expanded rapidly to meet these demands, the report said.

The company's financial report for 1942 showed net income of \$408,055, after provision for Federal normal and surtax, as compared with \$127,284 for 1941.

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Mother's Day... Sunday, May 9th

Dependable power gives life to the wings of our fledgling flyers. The unprecedented safety record of America's training schools is due in no small part to the unsurpassed dependability of America's trainer planes — many thousands of which are powered with Continental Red Seal Engines.

The mothers of America who have sons in our fighting forces should know that skilled Continental workers have placed dependability above every other feature of performance.

POWER TO WIN



Your Dollars Are Power, Too! . . . Buy War Bonds

Continental Motors Corporation
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Awarded to the Detroit and Muskegon Plants of Continental Motors Corporation for High Achievement.

ARMY E NAVY

Postwar Air Route to Batavia Sought by Chicago & Southern

An 8,826-mile postwar trans-Alaskan air service from Chicago to Singapore and Batavia is being sought by Chicago & Southern Air Lines as part of a program to establish the shortest route between the East Indies and the West Indies.

In an application filed last fortnight with the Civil Aeronautics Board, the company asked permission to conduct service from Chicago to Singapore and Batavia via Winnipeg, Edmonton and Whitehorse, Canada; Fairbanks and Nome, Alaska; Kamenskoe, Nikolaevsk and Vladivostok, Russia; Keijo, Korea; Shanghai and Canton, China; and Saigon, French Indo-China.

The company, which now operates between Chicago and New Orleans and from Houston to Memphis, filed application several months ago for an air route from New Orleans to the West Indies. Thus, if both applications were granted, the shortest East Indies-West Indies route would be established, the company pointed out.

The proposed 8,826-mile route would be 1,543 miles shorter than present air service from Chicago to Batavia via San Francisco, and no over-water hop would be longer than 480 miles, C&S added.

Flying time over the route would be 44 hours, according to the application.

This compares with 66 hours via the trans-Pacific route.

C&S would maintain "closed door" operations between intermediate points in foreign countries where there is already established airline service.

"An important aspect of the proposed line is the fact that the service over the Polar Great Circle course will contribute to the employment of men returning to private life after the war and make use of their experience," said Carleton Putnam, C&S president. "Many of our former employees will be familiar with the countries and conditions involved in the new route."

Capt. Jerome J. Dossat, in charge of the company's celestial navigation school, spent a large portion of his business career in the Far East and is active in the promotion of the new service. Capt. Reed Knight, chief pilot, flew as personal pilot for the Minister of Finance of China and is well qualified to supervise flight operations across Korea, China, Indo-China and the Malay States into Java, the company stated, adding that "a large number of Chicago and Southern's captains and co-pilots have had many hours of experience in flying cargo for the armed services over those portions of the proposed route which lie in the Western Hemisphere."

25th Anniversary of Air Mail To Be Celebrated

President Roosevelt will be honorary chairman of the committee arranging the 25th anniversary of regular air mail service in the United States, the Civil Aeronautics Administration has announced. The observance will culminate in a program at Washington National Airport, Sunday, May 16. This will be preceded by an air mail anniversary dinner in Washington the previous evening.

An advisory committee assisting with arrangements includes Vice President Wallace and all members of the President's cabinet, Chief Justice Harlan F. Stone, Harry Hopkins, James F. Byrnes, Donald Nelson, Gen. George C. Marshall, Adm. William D. Leahy, and Adm. Ernest J. King. Others who have been asked to serve are Gen. Henry H. Arnold, Brig. Gen. C. R. Smith, Lt. Gen. Thomas Holcomb, Rear Adm. John S. McCain, Under-Secretary of War Patterson, Asst. Secretary of War for Lovett, Asst. Secretary of the Navy for Air Gates, Maj. Gen. Harold L. George, and Capt. J. P. Whitney, USN.

Secretary of Commerce Jones and Postmaster General Walker will be co-chairmen of the observance, and William A. M. Burden, special aviation assistant to Jones, and Charles I. Stanton, CAA administrator, will be executive vice chairmen.

Invitations have been mailed to individual air mail pioneers, leaders in the aviation industry, and national notables to form an over-all advisory committee. Cities throughout the nation have been asked to make proper observance.

The first regularly scheduled air mail flight was between New York and Washington on May 15, 1918. U. S. Army pilots carried the first mail.

Application Filed for 12 Helicopter Routes

William B. Allen, of Washington, D. C., described by CAB personnel as a high school student, on Apr. 23 filed application with the Board for 12 air routes to be operated with helicopters.

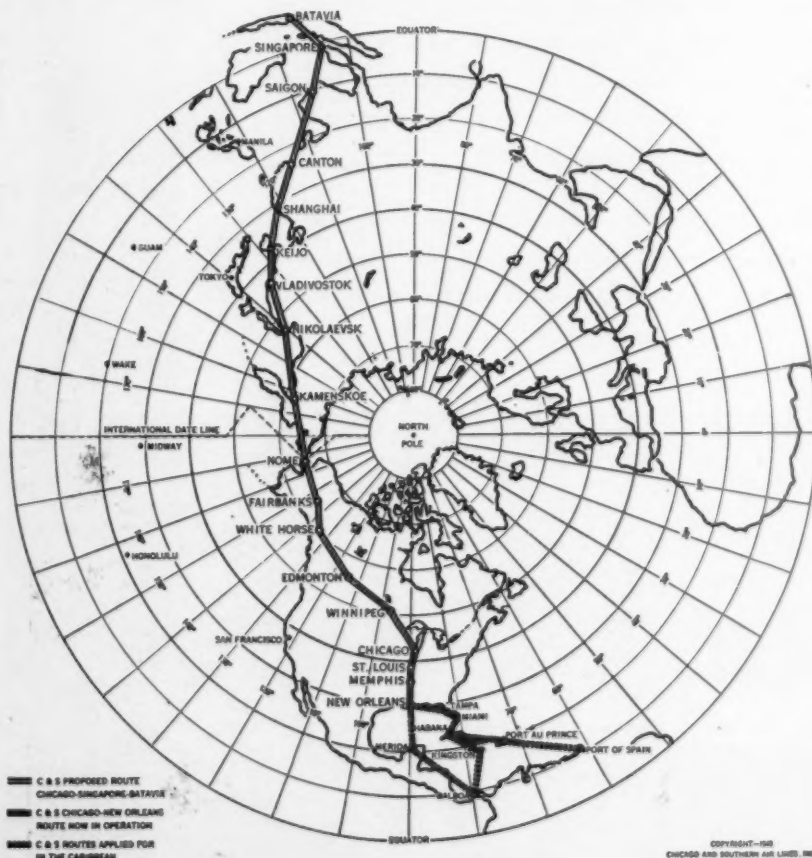
Routes sought include New York-Washington, New York City to LaGuardia Field, New York-Newark, Washington to Washington National Airport, Philadelphia to Camden Airport, New York and Newark to Asbury Park, Caldwell-New York, Summit-New York, Plainfield-New York, White Plains-New York, Mineola-New York and Rochester-Buffalo.

In addition, Allen asks permission to serve every first and second class post office in New York, New Jersey, Pennsylvania, Maryland, Delaware and the District of Columbia.

He stated that he has already contacted Igor Sikorsky concerning the use of helicopters.

New Royal Dutch Offices

Royal Dutch Airlines has leased executive offices at 521 Fifth Ave., New York, N. Y., which will be occupied jointly with Royal Netherlands Indies Airways. These firms operate lines in the West Indies, South America, and between London and Lisbon.





O. K.

You'll find no simple "O. K." stamped on a Boeing Flying Fortress.*

Nine thick volumes—hundreds of pages of individual O.K.'s—are accumulated during the manufacture of a Fortress. All are part of the inspection data on each plane. It's in the record.

Every one of two hundred fifty thousand-odd rivets has been individually O.K'd. Every single part has been inspected. Every operating part and system has been functional-tested. Nothing is taken for granted—nothing is taken on faith—by these highly trained inspectors.

And when the huge Boeing bomber is rolled out onto the flight-apron, ready to take off for distant fighting fronts, the nine thick volumes are recorded on microfilm and carefully stored: a permanent history of a B-17, and a guarantee that the airplane is flawless in every detail.

This Boeing-developed inspection system is so organized as to be rigidly, painstakingly thorough without slowing up the ever-accelerating flow of production . . . and to compensate, where necessary, for shortages of skilled labor. It is another evidence of the manufacturing

know-how which made possible, on desperately short notice, volume production of America's first four-engine bomber.

And when peace returns, and Boeing-designed-and-built Flying Fortresses, Stratoliners* and transoceanic Clippers have completed their last wartime mission, then Boeing's talent for manufacturing—plus equal talent for design, research and many varied fields of engineering—will serve you for better living.

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Latin American Route Mileage

Longer Than U. S. Pre-War Lines

By ROBERT H. WOOD

Airlines in Central and South America and the Caribbean are now operating a route mileage 124% greater than the United States pre-war domestic system, although scheduled miles flown per week are only 30% of the corresponding U. S. figure for 1941.

Brazil is supporting the largest Latin American air system in route miles, and in number of scheduled miles flown as well, with Mexico second. Coming third are the West Indies and Caribbean areas.

These conclusions are reported by the recently-formed Office of Air Transport Information of the Commerce Department, which has completed its first study, showing data on 40 Latin American airlines. J. Parker Van Zandt has been OATI director, with Frederick C. Meltzer and Albert G. Sweetser compiling the new report.

A booklet has been prepared for restricted circulation to a few government agencies and industry executives which incorporates two color maps, an index to all of the 555 Latin American cities and towns served by air regularly, a statistical summary, and special information on each air carrier, including office address, schedules, equipment, fares, express rates, system and frequency maps, ground transportation and nearby hotel facilities.

Total mileage of the Latin American network is 106,828, as compared with the U. S. pre-war maximum of 47,703, the OATI reports. Scheduled miles flown per week is 760,993, against the U. S. pre-war maximum of 2,570,000.

Mexico City is shown to be the busiest air terminal, based on scheduled arrivals and departures (109) per week, followed by Camaguey, Cuba, with 74; Rio de Janeiro with 71, Buenos Aires with 56 and Barranquilla, Colombia, with 53.

"Although the airline network of Middle America is only a little more than half as great as that of South America," OATI says, "more frequent service brings the scheduled miles flown per week to within 12% of the corresponding figure for South America."

Variety of aircraft, both in size and

type, is a peculiar feature of the Latin American airlines even yet, although much has been done in the past two years by the U. S. government to make possible acquisition of modern American planes.

The study shows, for instance, that the fabulous TACA not only is flying modern Lockheed 14s but historic types such as Ford 12-passenger tri-motors, Curtiss 18-passenger twin-engined landplanes, Bellanca 5-passenger single-engined Skyrockets, Travelair 4-passenger single-engined ships, and Curtiss Kingbirds, twin-engined models accommodating 7 passengers.

Cubana is using a 10-passenger Lockheed Electra but also depending on 13-passenger Ford tri-motor landplanes and hydroplanes.

Aeronaves de Mexico turns up with a Boeing 247, plus Bellanca Pacemaker carrying five passengers, Beechcraft C17R for four passengers, and a Curtiss-Wright Travelair.

Another pioneer operation similar in its wide scope of service to TACA is Compania Aeronautica del Sur, known popularly in Mexico as Woodside, after its founder. This company's fleet boasts not only Curtiss Travelairs, two-passenger Curtiss Robins, and five-passenger Curtiss Thrush models, but near-extinct varieties such as the three-passenger Verville 104, five-passenger Ryan B-3 and B-7, six-passenger single-engined Fokker Universal, and the 5-passenger Cunningham-Hall PT-6.

The Verville 104s were built in 1930, Civil Aeronautics Administration records show, while Curtiss Travelairs of the five passenger size were produced in the 1928-31 era, and the Robins and Thrushes came along about 1929-1930. Ryan B-3s were turned out by the old Ryan Aircraft Co. in 1928, and the B-7 is dated about 1929 and 1930. Cunningham-Hall Aircraft Corp. produced its PT-6 in 1929.

Sarabia of Mexico is still using Bellanca CH ships of five passengers, Stinson A, for nine passengers; Lockheed-Vega 5-C six-passenger craft, Spartan C5 four-passenger models, a Bach trimotor, and Travelairs. All of these planes, too, were built in the 1929-1931 neighborhood. Government records in 1937 showed only three Bach planes still in existence. This type was certificated by L. Morton Bach in 1929.

Taxi Aereo de Oaxaca, popularly known as Taxi Aereo, is flying a Stinson Junior of 1931-1933 vintage, a three passenger job; a Stinson SM of 1929-1930, and a Buhl CA-6, three passengers, turned out sometime between 1927 and 1930 by the Buhl Aircraft Co., which was known for its "Buhl's Flying Bull Pup" of 1931.

British West Indies Airways uses Lockheed 14s and Lodestars, for its circuits in the area of Port of Spain, Tobago, and Grenada.

Aeroposta Argentina depends on Junckers JU-52s, whose descendants have been busy dropping from the battle skies around Tunisia. Aeroposta reports its JU-52s are 17-passenger ships, trimotored. This type is also used by LASO in Argentina, Cruzeiro of Brazil, VARIG

Latin American Airlines

	Unduplicated Route Miles	Sch. Miles Flown/Week
Aeronaves de Mexico	1,846	10,320
Aeroposta Argentina	1,583	5,988
Aerovias de Guatemala	699	1,994
Aerovias del Ecuador-Panagra	907	4,478
Aerovias Nacionales de Colombia	6,460 (6)	41,441 (5)
American Airlines de Mexico	1,136	22,120 (8)
British West Indian Airways	375	4,884
Caribbean - Atlantic Airways	117	468
Compania Aeronautica del Sur	1,313	7,286
Compania Aeronautica F. Sarabia	640	2,560
Compania Aeronautica Uruguaya	160	1,920
Compania de Aviacion Faucett	2,312	23,824 (7)
Compania Mexicana de Aviacion	5,322 (7)	60,356 (3)
Compania Nacional Cubana de Aviacion	1,129	18,548 (10)
Comunicaciones Aereas de Veracruz	525	3,200
Corporacion Sudamericana de Servicios Aereos	860	4,440
Correio Aereo Nacional	10,625 (3)	30,774 (6)
KLM	3,466 (9)	13,240
Linea Aerea Nacional (Chile)	1,345	16,570
Linea Aerea Nacional (Peru)	832	4,664
Lineas Aereas del Estado	960	3,840
Lineas Aereas Jesus Sarabia	224	2,828
Lineas Aereas Minas	1,679	10,618
Linea Aeropostal Venezolana	2,948 (10)	14,752
Lloyd Aereo Boliviano	2,024	4,431
Navegacao Aerea Brasileira	2,855	11,954
Pan American Airways	19,738 (1)	236,243 (1)
Pan American-Grace Airways	7,436 (4)	65,490 (2)
Panair do Brasil	11,060 (2)	52,754 (4)
Primeras Lineas Uruguayas de Navegacion Aerea	950	5,260
Servicio Aereo Panini	1,478	9,310
Servicios Aereos Cruzeiro do Sul	6,753 (5)	20,504 (9)
Sociedad Argentina de Navegacion Aerea	35	840
Taxi-Aereo de Oaxaca	410	2,460
Transportes Aereos Centro - Americanos	3,893 (8)	18,095
Transportes Aereos de Jalisco	148	1,184
Transportes Aereos de Tampico	389	4,038
Uraba, Medellin & Central Airways	381	2,286
Viacao Aerea Rio Grandense	1,009	5,803
Viacao Aerea Sao Paulo	806	9,228
	106,828	760,993

Operations by Area

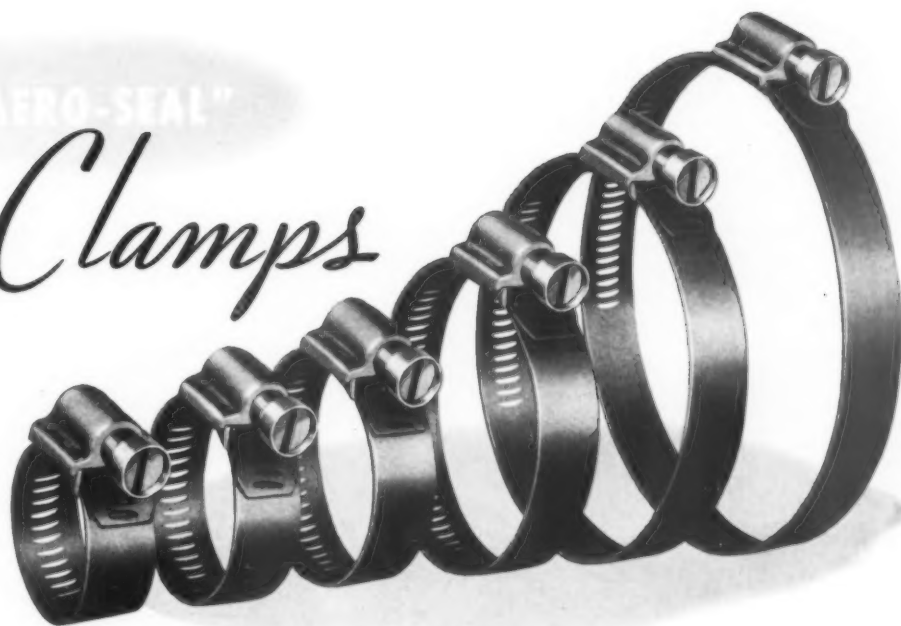
	Unduplicated Route Miles	Sch. Miles Flown/Week
Argentina	5,604 (6)	33,194 (7)
Bolivia	4,117 (8)	10,759 (12)
Brazil	37,728 (1)	175,013 (1)
Central America	6,036 (5)	52,775 (4)
Chile	2,643 (10)	26,472 (8)
Colombia	7,349 (4)	52,047 (5)
Cuba	1,129 (13)	18,548 (10)
Ecuador	1,235 (12)	9,070 (14)
Gulanas (Dutch, Fr., Brit.)	668 (15)	10,688 (13)
Mexico	15,890 (2)	163,200 (2)
Paraguay	1,110 (14)	2,220 (15)
Peru	4,641 (7)	47,526 (6)
Uruguay	1,907 (11)	12,306 (11)
Venezuela	3,679 (9)	24,986 (9)
West Indies & Caribbean	13,092 (3)	122,189 (3)
	106,828	760,993

of Brazil, VASP of Brazil, Avianca of Colombia, and others.

SANA in Argentina is still flying Consolidated Commodores built in 1930, accommodating 24 passengers. These are twin-motored amphibians. SANA also uses Sikorsky S-38s.

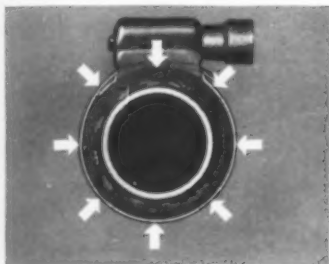
(Turn to page 48)

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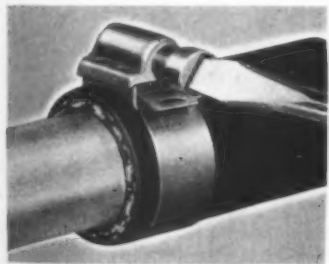


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WASHINGTON, D. C.

Pogue Urges Universal Accord On 'Commercial Air Transit'

International "freedom of the air," to the extent that the airlines of any nation should be permitted to fly over the territory of another nation on their way to destination, has been urged by L. Welch Pogue, chairman of the Civil Aeronautics Board.

Considerable significance has been attached to the remark of Pogue, who is also a member of the interdepartmental committee studying international air policy. The committee was set up at the personal direction of President Roosevelt.

Speaking before the Greater Twin Cities Chapter of the National Aeronautics Association in April, Pogue coined two new phrases: Commercial Air Transit and Commercial Outlet.

The first phrase, he said, would mean "the right of commercial aircraft to fly through the airspace of any nation, who, having found it advantageous to do so, has agreed to this international arrangement. It would include the right to land at agreed airports to refuel, to make repairs, or to take refuge from bad weather. It would not include the right to discharge or take on passengers and cargo."

Commercial Outlet, he continued, would include this latter right.

"Our own enlightened self interest and that of all other nations, requires that, as a part of aviation's future international arrangements, a world charter be given to aviation now, by granting generally this right of Commercial Air Transit," Pogue asserted. "Such a charter, flexible like our own constitution, would constitute a worldwide framework, facilitating the future establishment of Commercial Outlets at all points where future world developments may make them desirable . . . Why should there be obstacles in our way to reaching Commercial Outlets? . . ."

"It is urged that we cannot permit planes of foreign nations to fly over our territory for reasons of military security. The opportunity of seeing and photographing our entire country with all of its military and defense establishments is raised as an objection . . ."

"The argument overlooks the fact that our own domestic airlines, covering many more routes than would ever be used for Commercial Air Transit, are always available to any person, be he an American or a foreigner, who might be interested in a bird's eye view of our country. It seems absurd to suppose that effective spying will be done in any such casual way, through the small window of an airliner. The real McCoy, if he uses air at all for spying, will hire a local flivver of the air, with flexibility of operations and no fixed route to follow, in which to have observations made. The argument also overlooks the fact that regardless of the degree of air commerce expansion, each country may prohibit air travel by its own civil aircraft as well as those of a foreign country, over designated areas and each may specify the airports at which foreign aircraft may land for technical purposes."

In urging a Commercial Air Transit agreement, Pogue argued that such agreement would be more desirable than:

1. Continuing practices of the past.
2. Making a single agreement between nations, designating particular routes and

airports for international air traffic. "This suggestion assumes the ability to determine for all time the future map of international air commerce, a task obviously impossible at this early period."

3. Establishing "zones of influence," assigning one to each of the several nations having extensive air transport industries. "Any plan of this nature smacks of outworn imperialism and has an obviously limiting effect upon the rights of smaller nations who may well wish to enter the field."

Military Operations Dept. Formed by UAL

A military operations department has been established by United Air Lines to coordinate the increasing volume of military activities which the company is undertaking under government contract.

E. P. Lott, veteran UAL pilot, has been named director of the department, and Daniel C. Meenan, lately of the company's legal department in Chicago, has been named supervisor of military contracts, said an announcement by J. A. Herlihy, executive vice president in charge of operations. The new division will assume charge of contract cargo operations and military training activities which United is conducting. It will function as a regular staff group in Chicago.

American Export's Base Tripled; Fleet Increased

New and enlarged quarters for American Export Airlines, three times the size of its present base, will be opened soon at La Guardia Field, the company announced last week. The increased facilities will enable the company to coordinate its main-base operations and most of its training activities, the report said.

American Export recently added the Glenn Martin PBM3 and the Consolidated PB2Y3 to its fleet of Vought-Sikorsky planes. New nose hangar, enlarged shop and office space are designed to accommodate recently acquired aircraft and equipment.



Leaders: Three men who have shown great interest in the future of air transportation are, left to right, Croil Hunter, president of Northwest Airlines; L. Welch Pogue, chairman of the Civil Aeronautics Board, and Gov. Harold E. Stassen of Minnesota. They are shown together at a recent Twin Cities meeting.

New York to Have World's Largest Port

IDLIEWILD AIRPORT, now under construction on the north shore of Jamaica Bay in New York, will have an area of 2,576 acres, five times the size of LaGuardia Field, and will be the world's largest airport, according to a report made recently to New York's Mayor LaGuardia by W. B. Herlands, Commissioner of Investigation.

Construction, it is said, will be completed in 1945, barring possible wartime delays.

The two largest runways at Idlewild will be two miles long. All together, there will be 13 miles of runways for landplanes and three landing areas in the bay for seaplanes. The runways, each 200 ft. wide, will be laid out in pairs in four different wind directions.

Thus, it is said, planes will be able to take off and land simultaneously on each pair of runways. There will be five miles of paved taxi strips 100 ft. wide.

Seaplane landing areas, each two miles long and 1,000 to 1,500 ft. wide, will be laid out in different wind directions.

The New York Herald Tribune quoted the report as saying that runways will be built to "accommodate the immense size and weights of the heavy bombers and large cargo-carrying planes now under construction." Engineers are making studies "of the types of pavements most suitable for the contemplated plane weights of 150 tons."

Construction of the runways will require 4,000,000 bags of cement, 700,000 cubic yards of crushed stone, 350,000 cubic yards of sand and 38,000 gallons of joint compound.

Construction of the airport was undertaken by the city in 1941 after the Navy took over Floyd Bennett Field, Brooklyn and after it became apparent, according to the report, that LaGuardia Field "had been utilized to its fullest capacity."

The city received \$9,250,000 from the government for Floyd Bennett Field and this, plus \$860,000 from the CAA, were used to finance Idlewild.

However, this covers only cost of dredging and filling, paving of runways and taxi strips, draining and lighting, plans and specifications for road approaches and engineering fees. Present work on the field consists of filling and dredging.

How hangars and other buildings will be financed has not been revealed.

Northwest Airlines Report

Northwest Airlines carried 5,872 passengers during March, compared with 4,741 in February, according to Croil Hunter, president, Air mail carried during the month totaled 319,695 lbs. as against 255,577 lbs. in February, while air express amounted to 135,454 lbs., a gain of 35,000 lbs. over February, Hunter said.

Alaskan Line Formed

Alaska Central Airlines has been formed for general charter operations out of the main base at Fairbanks, Alaska. Richard E. Lee is general manager.

Postwar Airline Competition in Latin America Desirable—Burden

Assuming the postwar world is "organized along democratic lines, there are sound reasons why we should give serious consideration to extending competition between United States carriers in Latin America on a permanent basis," William A. M. Burden believes. Mr. Burden is special assistant for aviation to the Secretary of Commerce.

This statement is one of the conclusions drawn by him in *The Struggle for Airways in Latin America*, a comprehensive survey of air transportation in Latin America including the first published account of the eviction of Axis airlines from South America at the outbreak of the war.

Mr. Burden recommends that our policy toward post-war international airlines be one of government regulated indirect competition, just as it now is in domestic air transportation. "Indirect competition, by alternative routes to the same area, probably is the type best suited to Latin America," he amplifies by saying a U. S. owned system could be divided into east coast and west coast trunk lines, each with its connecting feeders and U. S. terminal with perhaps a third running through the center of the continent.

By routing these lines so they did not parallel each other and except at each terminal did not operate in the same countries, "each company would have ample territory to draw from, and yet would preserve the competitive principle to the fullest practical extent."

"We have had, in effect, uncontrolled monopoly up to 1938," he points out, "and controlled monopoly since then; but our Latin American trunk line services, excellent though they are, leave something to be desired." Among the improvements anticipated in the future are lower rates, improved sales promotion, much faster schedules (due chiefly to inception of night-flying and improved plane models) more comfort and greater safety. "In short," Mr. Burden concludes, "postwar international service between the U. S. and Latin America will represent not merely an improvement over present services but in effect an entirely new kind of transportation. Superior service should not only produce greatly increased revenues but also have profound and salutary effects on inter-American social and commercial relations."

Mr. Burden, however, made clear to *American Aviation* that these conditions would prevail only under a democratic world system. "If we have a 'stand-off' peace," he said, "we might well want to keep international air transport under government control." Stimulus for increased efficiency and progress would then have to come from competition against airlines of other nations.

The Struggle for Airways in Latin America is the result of a report Mr. Burden made in May, 1941, for the Coordinator of Inter-American Affairs based on his experiences in forcing German and Italian-sponsored airlines out of Brazil. "The first services to be affected by the war were inevitably those on the South Atlantic route connecting Europe and South America. The German operation was the first to be hit; Lufthansa dis-

continued its transatlantic line immediately upon the outbreak of hostilities. The Air France mail service . . . ran regularly until the collapse of France in June, 1940 . . . The English were forced by the war to abandon their plans for a transatlantic airline from London to Rio de Janeiro and Buenos Aires. The Dutch pushed their expansion in the West Indies aggressively until early 1940; these services were still operating on a reduced scale in January, 1943, although plans for a transatlantic service were abandoned when Holland fell in May, 1940."

The first step in America's attempt to oust the Axis-owned airlines was the provision of service to replace theirs by extending United States companies and by providing funds, equipment and technicians to small Latin American-owned lines. In some cases Axis companies had

24-Hour Clock is Adopted by Western

Adopting a suggestion contained in a recent *American Aviation* editorial, Western Air Lines on Apr. 21 announced that it was gearing its entire airline operation to the 24-hour clock.

Stating that it was the first domestic airline to make this change, the company immediately began to issue timetables based on the global 24-hour clock, eliminating the use of "A.M." and "P.M." as well as lightface and boldface type.

William A. Coulter, WAL president, said adoption of the new time was considered necessary in view of international air schedules as well as for the convenience of military passengers. Both the Army and the Navy use the 24-hour clock, which Coulter described as "very simple to use" and "certainly less confusing than the old system."

Global air time based on the 24-hour clock begins at one minute past midnight and is always expressed in four digits. Thus, one minute past midnight is 0001, while midnight is 2400.



New Time for WAL: As Western Air Lines shifts to the 24-hour clock, flight crews set their watches to the new time. Lt. Ralph Crosby, right, Air Service Command, checks WAL Capt. James Gaskill and Stewardesses Cora Griffith and Genevieve McCarran by an Army 24-hour clock.

Asks Denial of EAL Line

CAB Examiner Berdon Bell on Apr. 14 recommended that Eastern Air Lines application for a route from Greenville to Memphis via Chattanooga, Huntsville and Muscle Shoals be denied.

committed such flagrant violations of local laws and rendered such inefficient service that Mr. Burden says, nationalization or requisitioning was inevitable. But where more indirect methods had to be employed, cutting off supplies of aviation gasoline was found to be most effective. Since almost all high-octane gasoline used in the American republics came from British or U. S.-controlled companies, it was very easy under the Neutrality Act of 1940 to control its shipment and consequent use. Black-listed companies also found it impossible to obtain spare parts.

Mr. Burden believes that it is of "lasting significance that the extensive network of German and Italian-sponsored airlines in South America has been forced to cease operation completely, their services having been entirely replaced by South American or United States-owned companies. The elimination of Axis air transport activities has been brought about through the co-operation of all the American republics, but with aircraft and financial assistance provided by the United States."

Mr. Burden emphasizes the importance to South America of airline development. "To begin with," he explains, "the airplane promises to give Latin America a semblance of physical unity by overcoming the formidable geographical barriers which have divided it from time immemorial." Expansion of air transport facilities, including gliders and airmail pick-up, will promote economic development in agriculture, rubber, metals, and quinine, as well as social and political progress, he believes.

The book was published by the Council on Foreign Relations, New York, and sells for \$5.

Latin American Lines

(Continued from page 44)

LAB of Bolivia operates Lodestars, NAB of Brazil reports Beechcraft B-19's, and Lodestars; Panair do Brasil has Lodestars, Fairchild XA's (eight passenger single-engined amphibians) and Sikorsky S-43s, 15-passenger twin-engined amphibians.

Cruzeiro of Brazil, besides its Junkers 52s, maintains service with the Junkers F-13, a four-passenger single-engined landplane, and a Junkers W-34, four-passenger single-engined hydroplane.

VARIQ of Brazil is well equipped with such Axis types as Messerschmitt M-20s, 11-passenger landplanes; Fiat G-2s, six-passenger trimotors; Junkers F-135 single-engined landplanes and the popular Junkers 52, which on this line carries 21 passengers.

Avianca of Colombia flies JU-52s, Ford tri-motored hydroplanes, Boeing 240s, and Douglas DC-2s and DC-3s. Aerovias is using DC-2s and DC-3s. Faucett of Peru is operating Faucett-Stinsons, seven-passenger, single-engined landplanes, originally Stinsons but subsequently rebuilt by the airline. LAN of Peru is using Grumman G-21 amphibians, Stinsons, and Travelairs.

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TRANSPORT

Fleming, Clark New Directors of PCA

Pennsylvania-Central Airlines announces the election of Robert V. Fleming and Harold B. Clark as directors.



Fleming

Fleming, a former president of the American Banker's Association, is president and chairman of the board of the Riggs National Bank and a director of Capital Transit Co., Chesapeake & Potomac Telephone Co., and Potomac Electric Power Co., all of

Washington, D. C. He also is a member of the board of the Metropolitan Life Insurance Co. of New York and the New York Stock Exchange. Clark is associated with White, Weld & Co., New York.

The company also announces the election of Robert J. Wilson, a Grand Rapids, Mich., attorney, as vice-president of its legal department.

UAL Directors Name Three New Officers

Three new officers of United Air Lines were elected by the company's board of directors at its annual meeting in Chicago, Apr. 13. Seven were re-elected.



Wilcox

P. M. Wilcox, secretary of the company as well as assistant to the president for the past seven years, was named vice-president in charge of the administrative department. He will coordinate various depart-

mental activities. John W. Newey, who became associated with United early in 1942 as assistant to the president, in charge of stockholder relations, was elected vice-president in charge of the company's financial program. S. P. Martin, who joined United in 1927 and who has served as assistant to the operating vice-president since 1941, was elected secretary.

Officers re-elected included W. A. Patterson, president; J. A. Herlihy, vice-president in charge of operations; Harold Cray, vice-president in charge of traffic; C. C. Thompson, vice-president-public relations; N. B. Haley, treasurer; and Seely V. Hall and R. L. Dobie, regional vice-presidents-operations.

Patterson pointed out that Newey is now serving temporarily in a financial advisory capacity to Lineas Aereas Mineras, S. A., the Mexican airline which United intends to purchase if approval is granted by the Civil Aeronautics Board.

Airline Commentary

In the midst of all the furor over global air routes, a humorous item crept into the news at CAB last fortnight . . . Received by the Board, and reported elsewhere in this issue, was an application filed by William B. Allen of Washington, D. C., for several helicopter routes . . . Board personnel told us that Allen was a Washington high school student . . . They went on to say that another individual had been calling up the Board inquiring about helicopters . . . So they asked Allen if he knew this individual . . . "Oh sure, I know him," the boy said. "He sits near me in school. He's trying to steal my stuff." . . . Assuming that Allen is a high school student, we give him credit for a nicely-written application—better, in fact, than quite a few we've read . . .

Don't look for action to be taken tomorrow on applications filed by airlines for foreign routes . . . As a matter of fact, we might even say don't look for action . . . Chances are the Board won't consider them for a long, long time.

The exclusive story in the last issue of *American Aviation* concerning the formation of trans-Oceanic Air Lines has drawn a lot of comment . . . In case you missed it, the company has been formed by trans-oceanic ferry pilots most of whom are now flying for the British Air Transport Command . . . According to Thomas Smith, president, the company will have, the day war ends, 100 complete four-engine crews, 200 mechanics, and 1100 other employees, ready to operate anywhere . . . Smith now informs us that "the personnel we have enumerated will be sufficient to operate a round trip daily schedule between the North American continent and the British Isles; also a daily schedule through South America, thence Africa, the Middle East and Italy, and a schedule every other day from the Pacific Coast across to Australia and on into China and Japan" . . . The future of this organization, provided it can be held together (and those who know say it will hold together because all the personnel have invested money in it) should be very interesting . . .

With a war in progress, airline publicity men (and women) aren't leading an easy life . . . Knowing what they can release and what must remain unsaid presents a problem . . . Among those doing good jobs are Midge Winters of Western Air Lines, who has flooded this office with good pictures and copy, and alert Ray Bell of Pennsylvania-Central, who is new at the job but learning fast . . . (No slight intended to the other publicists—they're carrying on in grand style) . . .

The air mail situation continues to go round and round . . . Post Office officials told us definitely and emphatically that the PO knows of no plans for further curtailment of the air mail service . . . They made the statement despite the fact that Postmaster General Walker said on the west coast recently that it might be necessary to "ration" the use of air mail . . . The PO seems to be solidly behind any move for more planes for the airlines, and insists that it is moving heaven and earth to get a priority for air mail . . . On the other hand, a story comes to us that the PO has been cool to certain proposed priority plans . . . One plan would have allowed certain government and company officials to endorse letters as important to the war effort and eligible for transportation under a priority . . . Another would have given priority to all mail traveling over 500 miles . . . Still another would have established an "average load" which would have traveled under priority, all other air mail to have gone by train if necessary . . . We don't blame the PO for snubbing some of these . . . Incidentally, PMG Walker's west coast remarks put the air mail stationery manufacturers in a dither . . . The PO has assured them, over the signature of Second Assistant PMG Smith Purdum's signature, that no curtailment is planned . . . For the record, air mail is running 75% ahead of last year in volume—169 post offices report 6,000,000 lbs. monthly being dispatched . . .

As mentioned last issue, CAB is quietly gathering all available data on air cargo . . . Just recently the Board's research and analysis division sent to all airlines, manufacturers, and even to some railroads and other interested parties, a letter explaining its project . . . The Board's purpose seems to be to organize the research now going on in many quarters . . . It revealed that it is "presently engaged in a study of the quantity, density, value and ocean rates of exports and imports between the United States and the United Kingdom . . . We are also making a survey of the material available on the volume and characteristics of domestic railroad and motor freight, with a view of establishing a plan for the appraisal of the volume and characteristics in terms of potential air freight" . . . Keep an eye on this study, and get in on it if you're interested . . .

E. B.

Need Seen for Powerplant Test Stand

Duplication of Airline
Operating Setup is
Proposed by Writer

By E. J. FOLEY

WE HAVE favorably discussed at an earlier date decentralized air transport maintenance as made possible by a production line technique. The basic operating principle of such a technique is "change-to-service," the isolation of all possible maintenance from the airplane proper.

A major contribution to this practice is the quick-change nacelle assembly as an aircraft design feature. Even if we attain the goal of having to change an



Foley

engine only four overhaul, we believe that large-scale airline operations will find it economical to pull the assembly (where design permits!) for any service much greater than a wash-down. If such is the case, we require facilities to assure ourselves that the nacelle assembly to be installed will really tick.

The powerplant combination obviously is the heart of one of the bodies that make up the air transport industry. As such, its indisposition or reluctance vitally affects our entire operation. Our treatment must be direct and positive if we are to avoid schedule delays or cancellations.

Similarly, our decentralization may be thoroughly cluttered up by an inability to guarantee the soundness of each nacelle assembly. Through experience, we know that static, visual inspection necessarily falls far short of assuring this perfection. The only positive technique is to install the assembly in the aircraft and run it under actual operating conditions. To follow this line of attack is a hazard to operation since discrepancies noted so late in the game mean delays, at least.

The normal engine overhaul practice, of course, implies a test stand run of the rebuilt engine. We all know this to be no sure-fire indication of successful operation or even a fair test, because, of the possible variables, probably 90% of them are varied between test stand and aircraft installation. The inadequacy of present practices to insure against spotty operation, so caused, poses a problem that time won't solve.

As a solution, we suggest the airline application of test runs of the entire nacelle assembly: engine, cowling, propeller, accessories, etc., on a special "operating test stand." The facilities should duplicate in exact detail, the aircraft powerplant installation. Since in multi-engine ships, installation details vary between the several nacelles, alternates of such items as fuel and oil lines might be required for operating identity.

Not novel, the idea is a simple adaptation of the aircraft manufacturing practice of testing engine-propeller-nacelle

combinations by operation on a full scale mockup segment. The idea may be thought of as new only in its possible use by the transport operators.

Portable or Stationary

The complete operating test house as envisioned might be either portable or stationary. If the former construction were used, the nacelle assembly could be so mounted as to be exposed to simple outside air conditions. Operations so conducted would be equivalent to the ground runup. If we make the unit stationary, there may be advantages in providing for variations of temperatures, humidity, and so on. This would add to its value as a test or research medium. In any case, the design should be dimensionally adequate to allow use of a full-size propeller, not a club. Similarly, we recommend that the controls or operating station should correspond in all practical details to the appropriate station aboard the aircraft.

We presume that future transport aircraft will require the services of a flight engineer. Accordingly, the controls for our test house should agree with the provisions of this crew member's station.

Application of the test house to several possible types of aircraft would be an attractive if not a necessary feature. Such interchangeability will obviously require combinations of supply systems, etc., if we are to duplicate actual installations in each case. Complications might be numerous and a detailed analysis of actual complexities is the only sound basis for judgment of the net economy of such a universal development.

Hopefully, flight engineers' instrument controls and switch paneling locations can be reasonably standardized. They certainly should be from the standpoint of maximum crew utilization on several aircraft types. If this standardization is attained, we need not worry over complexities in our "house" from this source. One layout patterned after a common-sense norm should suffice for any number of engine-nacelle combinations.

At Overhaul Base

The natural location for such a piece of equipment as our stand or multiples thereof would be at the engine overhaul base, which we prefer to think of as a nacelle-assembly overhaul base. Where this function is widely separated from the operating main base, it appears advantageous that facilities be available at each point.

One incidental but striking advantage to the operator, accruing from the availability of such a test unit is the practicability of familiarization and actual training of such specialized personnel in it. They would have all of the elements of flight except airspeed and altitude. Further, through this experience, their knowledge of powerplant troubles and their practical solutions would be graphically extended.

We think that such a device applied as a training course would bring the flight engineer close to the maintenance problems and corrective development work being done on the ground. The failure of the flight engineer to maintain this intimate liaison can cost the industry much in morale and overall operating efficiency.

The specific advantages of the unit other

than the above extra-curricular one, may be thought of as preventive plus analytical. Preventive in the sense discussed earlier; that is, by subjecting an overhauled or serviced assembly to a test run on our stand, we should be able to pick up any malfunctioning and thus assure ourselves, within reasonable limits, of a trouble-free initial operation.

The analytical advantages are realizable at the other end of the cycle. For example, we encounter engine trouble in operation which we feel can be corrected by a harness change. Since few engine troubles can be so specifically and positively attributable to a single item, we may have to go through the entire ignition system in trying to clear up the trouble. We lose lots of airplane time this way. Under the revised procedure, we pull the trouble maker and install a new one already tested and assign the removed unit to our test house as is.

Lose Only An Hour

Then, at our convenience, we operate the removed assembly, probably without even touching it and attempt a more detailed diagnosis for its educational value, if nothing else. Determining the trouble, we may be able to correct it right on the stand and run the engine again to prove our point. This is efficient service, away from the airplane. The unit is readied for service again, as required and if we assume any degree of functional design, we should lose no more than an hour in the engine change.

Opposing our suggestion, is the contention that such an intermediate test neither proves nor assures anything with respect to subsequent operation because in the simple transition from stand to airplane, discrepancies will still be introduced. The refutation to this argument, like the argument itself, cannot stand alone without actual samples of proof to support it. This matter is really up in the air. We should welcome any contributions of the readers' experience which would indicate a trend as to the value of our device.

The opponents may stiffen their opposition by saying that delays preventable by such a technique are negligible in number and total effect. And further that the training and possible analytical features are a poor basis for an investment as sizeable as our test house would entail.

We repeat that our position in the matter is a neutral one. We hold no brief for the idea other than as a possible solution to a problem which in tomorrow's large-scale fleet operation may be more acute than it is today. As a matter of fact, we grant that the operating test house would not fit in with today's techniques of maintenance and operation.

However, we feel it to be a link in our production maintenance chain which must be studied and tested by careful analysis. Any planning we may do will run up against a good many problems and here, we have a possible solution of one. The advantages of this solution as an analytical medium and training factor combine to further its possible contribution to the art of air transport operation.

If serious consideration of it results in its being scrapped, some more efficient solution will have had to be found for the problem. Your ideas pro and con will be most welcome.

EQUIPMENT

New Machine Reduces Rejections by Over 36%

A new machine which flares, burrs, squares and heads ferrous and non-ferrous tubing has been introduced by the Leonard Precision Products Co., 1100 Larson Ave., Garden Grove, Cal., and is known as the Tube Master.

Believed to be the first all-inclusive machine of its kind, the unit will work to either AC811 or AND 10060 specs and has, in application, reduced the percentage of Army-Navy rejections of coined, thinned or imperfectly machined tubing by over 36%, according to the manufacturer.

Ten sets of Flaring Dies and Centers, Squaring and Burring attachments are standard equipment of the unit for tubing 1/4" to 1 1/2" O.D. The compact design permits bench installation.

TA Clips

The Simmonds TA clip is a special semi-automatic fastener which has been adopted as a standard "snap-on" and "snap-off" fastener for certain aircraft applications. The clip can be engaged and disengaged without the use of special tools. The locking depends on two separate springs, each controlling a pawl operated by a plunger which can be moved with a finger. The clip locks automatically when pressed into the mating ring. TA clips are currently fabricated in aluminum, cold rolled steel and brass by Simmonds Aerocessories, Inc., New York.



Makers of Parts: Pictured at a dinner meeting of the Aircraft Parts Manufacturers association in Los Angeles are, left to right: C. C. Coddling, new general manager of the association; T. T. Arden, president; and Col. A. J. Broning, director of purchases, Army Service Forces, who was the principal speaker, discussing "Renegotiation in Principle."

New Greaseproof Paper Protects Metal Parts

A new, greaseproof paper, non-corrosive in application, which will protect highly finished metal parts has been announced by Sherman Paper Product Corp., Newton Upper Falls, Mass.

Called V-26, the new product is said to eliminate multiple wrapping by combining two protective laminations in one paper. The inner ply provides a greaseproof barrier for the retention of corrosion preventives and the outer ply strength protects the greaseproof membrane against damage.

Both plies are creped for flexibility, with a dead-limp folding quality. The line is available with an outer film of wax to provide a self-sealing surface if required.

Portable Starting Unit For Planes Announced

A new portable aircraft starting unit, known as the Nite-Hawk "Aero-Start" is announced by Lister-Blackstone, Inc., Milwaukee, Wis. and is being distributed through Graybar Electric Co. It provides external power source for all aircraft needs and according to the manufacturer has the advantage of offering constant voltage during the starting cycle.

The unit consists of a steel-housed, spring-mounted trailer in which is housed the d-c generator delivering up to 500 amps at either 12 or 24 volts. A 19 hp, 4-cylinder, gasoline engine of the aircooled type, complete with the electric starter provides the power. A pair of 24-volt floodlights, mounted on telescopic adjustable supports at the front of the trailer provide light for night operation. Large tool boxes are located on each side of the unit.

Flight Indicator

A flight indicator for the use of pilots has been announced by the aviation sales department of Standard Oil Co. of New Jersey, New York, N. Y. The indicator, which is circular, indicates true course, drift angle, ground speed, gasoline consumption and speed correction, by quickly performing manually some slide rule calculations. Pilots may obtain indicator by writing to R. C. Oertel, Esso Aviation Products Department, 26 Broadway, New York.

AVION INC. ENGINEERS AND MANUFACTURERS OF AIRCRAFT

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MAIN OFFICE — LOS ANGELES, CALIFORNIA

Opinions Vary on Willow Run; Wilson Sees 500 Planes Monthly

Willow Run, aircraft laboratory where an experiment in mass production is being carried on, was front page news again recently when WPB Executive Vice Chairman Charles E. Wilson visited the huge Ford plant outside Detroit.

Willow Run is on the beam according to Wilson who predicted that the plant will be turning out "500 planes a month by the time the next snow flies." This figure is even more optimistic than the original claims made by Ford officials—in consideration of two 8-hour shifts per day and a 30-day month. They stated that a bomber an hour would be turned out.

One main reason why this increase will be possible may be found in recent statements by Ford officials that they are throwing the vast resources of the Rouge and Highland Park plants into the bomber production picture to assist Willow Run. Many important parts of the bomber production program are being moved into these two plants where the manpower problems are not as great as at Willow Run.

Willow Run's chief problem remains one of recruitment. Located about 23 miles from Detroit, transportation and housing problems are extreme.

One Government official who has visited Willow Run recently stated: "There are two problems that the Willow Run plant must overcome if it is ever to reach peak production during this war. One, of course, is its manpower problems. The other is its slow method of absorbing changes.

"The plant is 23 miles from Detroit, but only a mile from the college town of Ypsilanti. At present the WMC officials and others dealing with the problem are attempting to improve transportation to and from Detroit. The real solution—if there is one—would seem to lie in the Michigan State Normal College being taken over by the Government and the dormitories used to house war workers. The Ypsilanti townspeople are opposing this move (and have apparently won) just as they originally opposed public housing in the area.

"Ypsilanti opposed the originally-planned 'bomber city' near the plant which, had it gone through, would have provided enough housing for the Willow Run workers. It did not want a rival community nearby because, (1) it might have changed the political (Republican) complexion of Washtenaw County, and (2) because they feared it might degenerate into a shack town after the war.

"The Ford Motor Co. opposed the bomber city because it said the problem was not a housing one. The company, which has always adhered to Henry Ford's feelings toward small towns, said rather than take away the men of surrounding communities, the problem was really one of providing good roads for the men to use in driving to and from the small towns. Unfortunately, the company could not foresee the rubber shortage.

"The NHA is building a small bomber city which will be completed this year and speeding its other housing projects in the area, but it is not enough to meet the demand in my opinion.

"Ford hired young men and is now losing them to the draft and through enlistments in large numbers. He is replacing them with women and is conducting a nationwide recruitment drive in labor surplus areas. But the people coming in from outside are not the machine-minded workers who came from the Michigan towns and training them is more difficult.

"So far, despite all of the publicized steps taken since the OWI report was issued, none give good reason to hope that the manpower problem can be licked sufficiently to enable the plant to reach peak production.

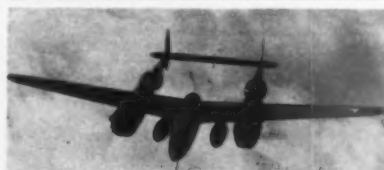
"There is also the question of whether the plant can absorb the changes which war will make necessary. The February and March production increased greatly, but was not hampered by the usual number of changes."

Opinions are still divergent about Willow Run possibilities with government officials undecided. Industry is frankly skeptical that aircraft can be built along the mass production lines familiar to the automotive industry. Willow Run, they believe, will produce bombers and good bombers, but not in the numbers anticipated and they prefer to continue their own methods of manufacturing aircraft.

Since January Willow Run has made monthly increases, but it has not yet produced any sizeable amount of craft. It has been estimated that production during April and May should be the turning point when it gets into large quantities.

Heads Canadian Ass'n

Walter F. Thorn, formerly associated with Prairie Airways, Ltd., and recently engaged in the establishment of repair depots and training schools in connection with the Commonwealth Air Training Plan in Canada, has been named general representative of the Air Industries & Transport Association of Canada. He will co-ordinate the views of member companies on all problems and policies affecting their common interests, represent companies in discussions with government officials, and supervise the industry's public relations, an association announcement said. Thorn's appointment coincides with a reorganization of the association and extension of its office facilities in Ottawa.



'Tear Drops for Tojo': Carrying two droppable fuel tanks under its wing sections, the Lockheed Lightning P-38 can practically double its normal range. Tanks are fastened to regular bomb shackles and can be dropped when empty. Each carries 165 gallons of gasoline, weighs 90 pounds empty, 1000 pounds full. They are said to reduce plane speed only 4%. Lockheed is now turning out these tanks on a conveyor assembly at rate of one every four and one-half minutes.

Ford Planning Broad Expansion of Engine Building Facilities

A new government contract of \$34,202,773 will enable the Ford Motor Co. to increase its production of airplane engines four-fold, the company announced April 17. Several plants in the Detroit area will be converted under the contract and engine-building facilities will be reorganized to speed production, the announcement said.

The government has authorized that the money be used to develop manufacturing facilities at plants in Tennessee and Missouri as well as at the Highland Park, Mich., plant, and a number of smaller plants in Michigan. The present rate of production of airplane engines in the Detroit area will be maintained despite the fact that reorganization plans call for moving 5500 machines, including heat-treating furnaces, large grinders, and heavy lathes, it was announced.

The company expects to avoid production bottlenecks by building up parts surpluses, then moving the machines one-fourth at a time. Each group moved will be put into production in new locations before more machines are dismantled. About 3000 new machines have been ordered.

About one-third of the total production space to be utilized under the new contract will be located at the Highland Park plant. Entire sections of several buildings there are being converted for prop shaft, gear, and miscellaneous production. Several new test cells will be constructed in the Rouge plant in Detroit.

The announcement reveals that nearly \$500,000 worth of auto assembly equipment already has been moved from the Tennessee and Missouri plants. At the Tennessee plant, idle since automobile production was suspended in January, 1942, tool room machinery is being installed. Nearly all of this plant will be utilized in precision machining of articulating rod pins, piston pins, cams, rocker arms, push rods, and crank-shaft counterweights, as well as rough turning of propeller shafts and numerous gears.

At the Missouri plant, more than half of the several thousand employees will be women, the announcement said. All cylinder muffs produced by the company will be manufactured here. Half of the cylinder heads and barrels produced will be machined and assembled at this plant.

Forty-five key men from plants scheduled to produce under the contract are at the Rouge plant studying production operations on the jobs which each plant is expected to do. Twenty-one men are from the Missouri plant and 20 from Tennessee.

About 800 employees will be added to small Ford plants in Michigan alone.

BUDD (EDWARD G.) MANUFACTURING Co., Philadelphia, Pa., announces net income for quarter ended March 31, \$689,487, after \$2,684,000 income and excess profits taxes, equal to \$11.58 a share on 7 per cent preferred stock on which accumulation of unpaid dividends amounted to \$84 a share at end of 1942. This compares with revised net profit of \$619,120 or \$10.40 a preferred share, after \$3,307,900 taxes, for 1942 period.

War

A PROVING-GROUND



How many

post-war

airports

will look

like this?

... and what about future plane-fueling?

MUCH-EXPANDED post-war traffic will force commercial airports to consider all possible ways of keeping tank trucks and other motor vehicles from cluttering a busy field. It should be merely a question of time until booster battery, air-conditioning and gasoline-fueling services are installed underground.

The Aqua Flotation System insures delivery to the plane of clean, dry fuel—with no loss of the volatile high-octane constituents by evaporation. And AQUA sets the highest-known safety standards. These and other advantages are being demonstrated daily at Army and Navy airbases.

AQUA
Flotation Systems

AQUA SYSTEMS, INC., 382 Gerard Ave., New York, N. Y.

{Subsidiary of Neptune Meter Company}

This book describes the principles of the Aqua System. Complimentary copies available to aviation executives and engineers.



1999

Plywood Interests Impede Growth of Industry in South—Higgins

Evidence will be presented to the Department of Justice by Andrew J. Higgins, president of Higgins Industries, Inc., showing that the plywood industry is seeking to prevent the development of plywood production facilities in the South, Higgins revealed Apr. 6 in a telegram to Senator John Overton (D. La.)

The telegram answered charges by Senator Alexander Wiley (R. Wis.) that Donald Nelson, chairman of the War Production Board, made a serious mistake in permitting the Higgins Aircraft Co. to build and equip a plywood factory in connection with a large order of cargo planes which the Army ordered Higgins to build. The charges presumably were inspired by a statement by Lawrence Ottinger, president of the U. S. Plywood Corp., that the grant of plant machinery and equipment to Higgins was "a waste of public funds and interference with the war effort and involves the use of a large quantity of critical materials needed for other purposes." Ottinger's statement was given wide distribution in the Senate.

"We intend to submit to the United States Attorney General's office a considerable accumulation of facts and circumstances that some time ago forewarned us of the objections and obstructions and protests that have been made and are now being made," said Higgins' wire.

"What are the facts and the records of these people who talk about waste of taxpayers funds, and speak of retarding the war effort? Before Pearl Harbor, one big veneer concern required a high price of \$42.50 per thousand for one-eighth mahogany veneer, rotary cut from the run of sawmill logs. In September, 1942 they raised the price on the same material to \$69. per thousand, and, strangely, other producers asked similar prices.

"As a comparison, before Pearl Harbor Higgins Industries were building tank-carrying lighters at a cost of \$32,000. Since Pearl Harbor this equipment has been improved and enlarged, and the cost has been progressively reduced down to \$18,200 per unit."

In reply to Senator Wiley's statement that the Higgins plywood plant would run into "millions of dollars," the ship-builder stated it would cost "considerably less than \$500,000, including buildings."

Higgins contends that the movement of mahogany logs, suitable for aircraft, from point of growth in Central and South America to plants in the northern and western states imposes a "double burden" on the railroads.

"New Orleans is the chief and cheapest port of entry for Central and South American mahogany. Why ship these logs to the north and again burden the railroads with a rehaul on the veneer or the plywood?" he asked.

The Ottinger statement, on which Senator Wiley's charges were believed based, follows:

"The Higgins Industries of New Orleans, La., have been granted equipment by executive order for the manufacture of plywood over the protest of the War Production Board and the Aircraft Scheduling Unit at Wright Field. The plywood industry, including many small

manufacturers, has at its own expense so equipped itself that its production is now several times present or anticipated requirements.

"The granting of machinery and equipment, as well as buildings, for a plywood plant, to Higgins, who has no experience, with Louisiana as a very bad location, is a waste of public funds and interference with the war effort, and involves the use of a large quantity of critical materials needed for other purposes."

Higgins asked why his company had been unable to obtain proper quantities of plywood if the plywood manufacturing groups and their spokesmen in the plywood and veneer section of the War Production Board claim there is sufficient capacity for the present aircraft manufacturing needs.

In reply to Ottinger's reference to his inexperience, Higgins said he had been "an important factor in the timber business and the manufacturing and exporting of all forest products since 1907." He termed the statement that the scheduling unit at Wright Field had protested the grant "not correct."

"He (Ottinger) also states that equipment which has been on order and which is now nearly completed or ready for shipment involves the use of a large quantity of critical materials and that this is unfair to other existing plants. Then why is this a crime in the face of the great amount of machinery furnished to many of the northern plywood corporation group or manufacturers associated or possibly combined with them?" Higgins asked.

Weatherhead Campaign

An "extensive" advertising campaign in national magazines and newspapers in the larger cities of the country, soon to be launched, has been announced by The Weatherhead Company, Cleveland, O. Company plans to stress that "groundwork has been laid for a healthy business after the war."



Praise for Production: President William T. Hedlund of Elastic Stop Nut Corp. congratulates top company manufacturing executives when previous high daily output of the self-locking device was topped by 1,000,000 nuts at Union, N. J., plant, and week's production was 25% above record. Standing left to right: W. F. Moore, shop superintendent; D. C. Andress, works manager; E. A. Sandwall, assistant shop superintendent; M. Brenner, production manager; M. C. Lucy, chief process inspector.

Sen. Wiley Scores WPB Approval of Plywood Addition

WPB approval of a \$255,000 plywood plant "addition" to supply the \$24,000,000 aircraft plant of Andrew J. Higgins, has provoked severe criticism from Sen. Alexander Wiley (R., Wis.) who claimed on the floor that there is already an excess of plywood.

WPB Vice Chairman Charles E. Wilson admitted in a letter to Wiley that "surveys of the WPB indicate an excess of plywood over all present war and civilian requirements of approximately 1,000,000 sq. ft. per month."

Under such circumstances, the Senator charged, "it is a serious mistake to allow any materials for building and equipment which is not definitely needed." He claimed that information that has reached him is that the cost of Higgins' plywood facilities will "run into millions of dollars". Wilson maintained, however, that the authorized cost of the plywood enterprise is \$255,000.

In spite of a plywood surplus, WPB deemed it wise to let Higgins go ahead with his plywood addition because "it is considered good policy to centralize responsibility for the entire program, especially when this can be accomplished for only 1% of the cost of the total project", Wilson said, adding:

"The approval of the plywood addition to the Higgins project is the approval of a necessary link in the entire project and not the approval of another plywood plant". He reported that "except for the seven plywood plants located in Oregon and Washington, all plywood plants in this country are operating at least one full shift at capacity, and the seven plants in Oregon and Washington are not operating at capacity, due to the log shortage and labor conditions surrounding this situation in the Western territory."

Cessna Workers Find it Pays to Be On the Job

Workers in the Cessna Aircraft Co. plants at Wichita and Hutchinson, Kan., are finding that it literally pays to be on the job.

To reduce absenteeism, Cessna has a weekly drawing. The badge number of each employee is placed in a hopper and the holder of the lucky number wins \$250—provided he has not been absent during the preceding week.

If a worker has missed a day or more, he is declared ineligible and the prize money goes back into the pot for the next week's drawing. Should this occur for two straight weeks, numbers then are drawn on the third week until a winner is determined. Winnings at that time will amount to \$750.

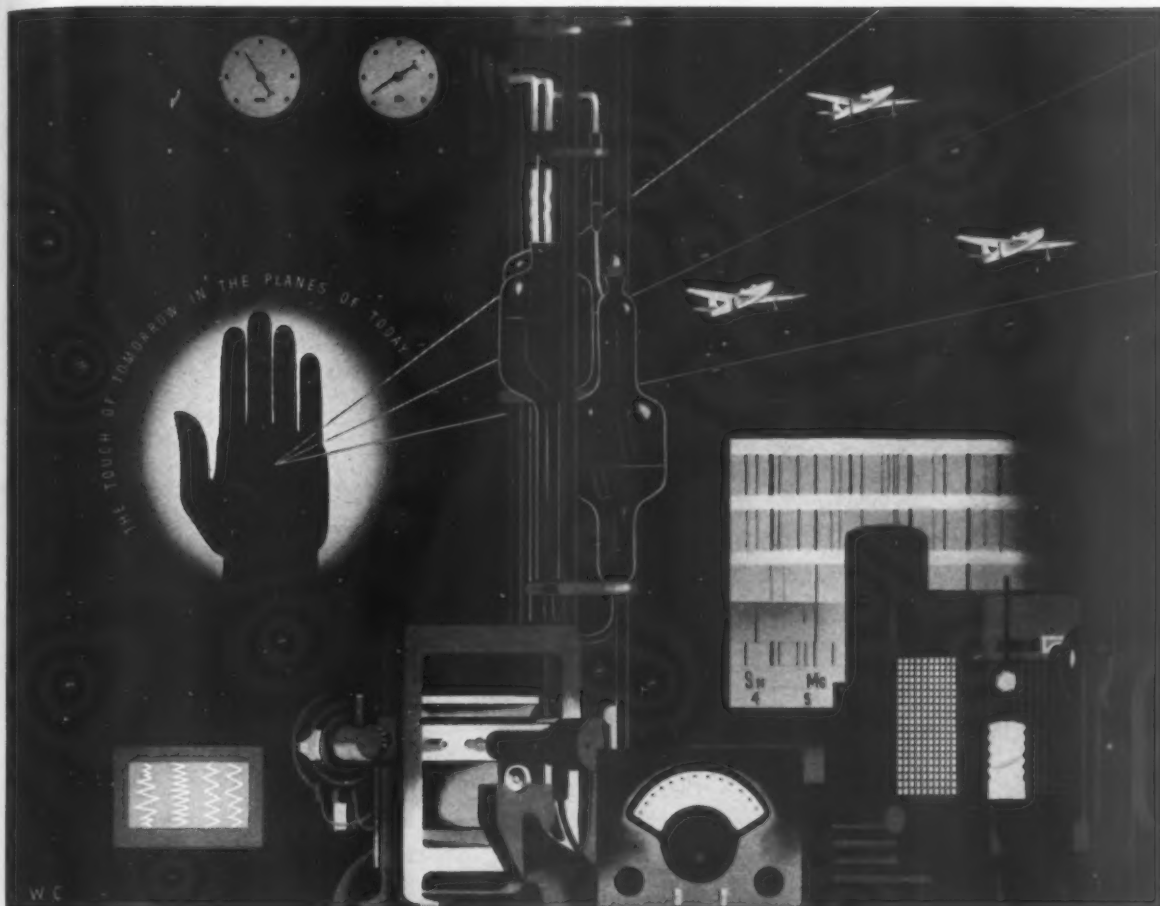
Other rules governing the drawing are:

1. Worker must clock in on time in the morning.

2. Should he become ill, he is excused for the remainder of the day, however, if he clocks in on time the following morning, his eligibility is not impaired.

3. After a worker is absent for one or more days he becomes eligible again only after two weeks of unbroken attendance.

Similar plans to reduce absenteeism are in effect at other aircraft plants.



Organizing Atoms for a Better Aircraft Engine

A visitor at the Ranger plant once remarked: "Scratch a Ranger engineer and you'll find a scientist!" In creating the Ranger in-line, air-cooled aircraft engine, Ranger engineers began by concerning themselves with the very atoms of which its metal alloys are composed. They made use of scientific instruments and techniques unexcelled anywhere in the world in scope and precision. And the same advanced metallurgical and chemical laboratory facilities are today guarding the quality of Ranger materials in the rush of war-time production. Spectroscopic, chemical and X-ray analyses of materials and finished parts are as much a part of Ranger production as milling machines, turret lathes and grinders.

All Ranger engines are put through the

acid test of actual operating conditions in scientifically equipped test cells. Ranger's experimental test cells can simulate flying conditions in temperatures as low as -70°F . and at altitudes up to 40,000 feet. Some of Ranger's tests on auxiliary devices are not duplicated anywhere in the aviation industry. In Ranger's

"flying laboratory"—a tactical war plane fully equipped with scientific test instruments—pilots and engineers daily add new knowledge to all that has been discovered before.

While thousands of Ranger engines are turning in a remarkable record in the planes of the United Nations, Ranger engineers persist in researches which will make even more readable news tomorrow . . . except in Axis newspapers.

"ON THE BEAM"

"The independence and liberty you possess are the work of joint councils and joint efforts, of common dangers, sufferings and successes."

—Geo. Washington's Farewell Address

Buy U. S. War Bonds and Stamps

RANGER

A I R C R A F T E N G I N E S

Division of Fairchild Engine and Airplane Corporation • Farmingdale, Long Island

Kaiser Subsidiary Operates Fleetwings

Kaiser Cargo, Inc., Oakland, Cal., has taken over operation of Fleetwings, Inc., Bristol, Pa., manufacturers of aircraft and parts, and is now conducting it as the Fleetwing Division of that company, according to information received in financial circles over the signature of G. G. Sherwood, treasurer.

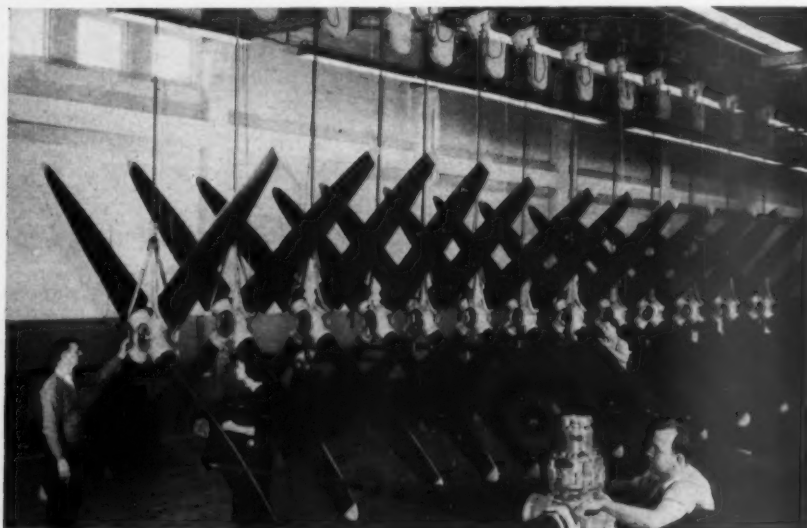
In taking over assets and assuming liabilities, Kaiser Cargo made Fleetwings a part of its financial structure and announced that it is arranging to operate under a Regulation "V" loan.

Kaiser Cargo, Inc., was formed under California laws on Nov. 17, 1942, a subsidiary of Henry J. Kaiser Co. The company is engaged in the construction of a special type of vessel for the U. S. Maritime Commission at a U. S.-owned shipyard at Richmond, Cal., on a cost-plus basis.

Official announcement said officers of the corporation are: Henry J. Kaiser, president; Edgar F. Kaiser, C. P. Bedford, Paul S. Marrin, E. E. Trefethen, Jr., and Robert L. Bridges, vice presidents; G. G. Sherwood, secretary and treasurer; George C. Ober, Jr., A. E. Beard, Chad F. Calhoun, Paul E. Rogers and William Britton Stitt, assistant secretaries.

Plastic Map Case

General Aviation Equipment Co., Inc., Ashley and Wilkes-Barre, Pa. is now producing a steel-stitched, laminated plastic map or data case to conform with Government specs. Each case is finished with two coats of high gloss, moisture-resistant lacquer. A tab and snap-button arrangement on the flap is said to make opening easy even with heavily gloved hands. The company also makes the standard Map Case and Flight Report Holder, as well as a complete line of aircraft control pulleys.



Conveyor Speeds Prop Output: "Somewhere in Indiana" in the newly completed warplane propeller plant of Curtiss-Wright Corp., finished Curtiss electric propellers of the four-bladed type are shown being carried along a conveyor to the final balance room. Through this factory, which only recently swung into production, move propellers for numerous types of fighting planes used by the Army Air Forces, the Navy and the United Nations. It is one of the most completely conveyorized propeller plants in the country.

Food by Air

Thirteen cafeterias operated in California by Douglas Aircraft Co. get their food supplies by air. The company has met coast shortages by flying butter, meats, cheese, and shortenings from the Middle West. J. L. Stevenson, director of welfare, announces. The weekly food demands for the company's cafeterias includes 155 beeves, 90 veals, 725 hams, 47 lambs, 90 hogs, and 875 lbs. of bacon. These figures include two meatless days per week, Stevenson says. Douglas plant managers in the middle west obtain the supplies.

Jury Indicts Coast Firm on Naval Fee Charges

A Federal grand jury in Los Angeles, Cal., has returned an indictment against Pacific Aviation, Inc., Los Angeles, and three officers of the company. Named in the true bill are Patrick J. Brady, general manager; Walter M. Jameson, vice-president; and W. H. Young, comptroller.

The defendants were accused in a three-count indictment of presenting false claims totaling \$43,534 to a Naval auditor. Added to the charges, the true bill states, were other fees for labor assertedly not chargeable to the government.

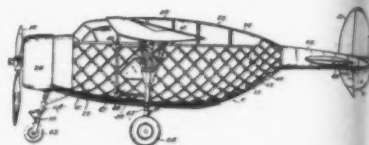
The indictment charged that records were altered so that government officials could not detect the fraud. The alleged false claims were made relative to contracts held by the concern for tools and parts for use in Naval aircraft.

The indictment followed presentation of charges by James E. Harrington, Harold F. Collins, Ernest A. Tolland, and Clayton L. Howland, of the antitrust and War Frauds Unit of the Department of Justice.

Patent is Granted for Glass Airplane

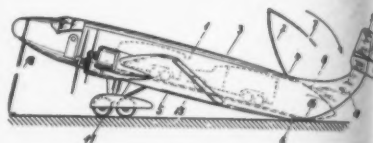
Patents have been granted by the U. S. Patent Office on a revolutionary "glass plane" and another craft which loads cargo at the rear of the fuselage.

First of these (No. 2,314,949) was issued to Richard W. Palmer, Whittier, Cal., and assigned to Vultee Aircraft, Inc. The plane is designed for photographic and observational work in which a maximum visibility in all directions is necessary.



The fuselage consists of a skeleton framework of metal ribs criss-crossed diagonally and forming square panels. Plexiglass or other safety transparent panes fill these openings.

It is described as comprising "a substantially ellipsoidal fuselage, extending fore and aft and having the rear end thereof of pronouncedly dome-shaped contour, and a rigid extremely thin empennage supporting tailboom fixed to, and extending rearwardly from, the open portion of the rear end of the fuselage."



The second patent was granted Fritz Freytag, Dessau, Germany, and vested in the Alien Property Custodian. It is patent No. 2,315,117 for which application was filed in September, 1939.

The rear end of the fuselage is designed to rest upon the ground when the plane is grounded. The entire fuselage is intended for cargo use and a pivotal door at the rear drops down to form a loading ramp.

Glenn Heads Aircraft Traffic Ass'n Board

T. B. Glenn, traffic manager of North American Aviation, Inc., has been elected chairman of the board of directors of the Aircraft Traffic Association, it was announced April 5 by Vincent M. Smith, executive secretary of the association.

Smith revealed that the association has been reorganized to include aircraft subcontractors, parts manufacturers, and the principal suppliers of aircraft parts and materials on the Pacific Coast. Formerly its membership comprised only the prime aircraft manufacturers.

Other officers elected include J. P. Boore, manager of Baker Steel & Tube Co., Los Angeles, Cal., vice chairman; S. E. Eades, director of traffic, Douglas Aircraft Co., Inc., Santa Monica, Cal., secretary, and E. L. Stephens, traffic manager of Northrop Aircraft, Inc., Hawthorne, Cal., treasurer. The retiring chairman is P. W. Milburn, general traffic manager of Douglas Aircraft.

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CUTTING THE PATTERN FOR VICTORY

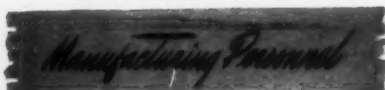
Here is one of many production fronts.....At Solar, continuous schedules are maintained to produce Exhaust Systems for the trainers, fighters, bombers and cargo planes of the United States. Our fighting forces can be assured that Industry at home is "Cutting the Pattern for Victory".



SOLAR

EXHAUST SYSTEMS—

SOLAR AIRCRAFT COMPANY ★ SAN DIEGO, CALIFORNIA



Otto C. Koppen, in charge of engineering research for General Aircraft Corp., Astoria, Long Island, N. Y., is on leave of absence to work for the Henry J. Kaiser Co. as chief designer of a new type of cargo aircraft. General also announces that **Harris Fahnestock, Jr.**, vice president and engineering test pilot, is on leave to work with the Radiation Laboratories, Massachusetts Institute of Technology.

Leston P. Faneuf, assistant vice president of Marine Midland Group, Inc., and former regional information executive of the Office of Price Administration, has been appointed an assistant to Lawrence D. Bell, president and general manager of Bell Aircraft Corp.

C. Hart Miller and **Alfred Marchev**, vice presidents of Republic Aviation Corp., Farmingdale, N. Y., have been elected directors of the corporation.



Miller

Marchev

C. G. Trimbach has been appointed chief of the developments and armament department of the Curtiss-Wright Corporation's Airplane Division research laboratory, Buffalo, N. Y.

William F. Wise, executive vice president of Aviation Corp. of Detroit and president of American Propeller Corp., Toledo, O., has been elected to the board of directors of National Tool Co., Cleveland, O.

O. H. Snyder has been appointed Dayton, O., representative for Consolidated Vultee Aircraft Corp., San Diego, Cal. Since 1941 he was Dayton representative for Consolidated Aircraft, before its merger with Vultee. **R. E. Posthauer**, who was Dayton representative for Vultee Aircraft, becomes assistant to Snyder.

Palmer A. Hewlett has been appointed Washington, D. C., representative of Consolidated Vultee Aircraft Corp., San Diego, Cal.

Harry C. Drayton has become experimental inspector at the Johnsville, Pa., plant of Brewster Aeronautical Corp.

Dr. Robert V. Yohe, technical superintendent of the chemical division, B. F. Goodrich Co., Akron, O., has been named plant manager of the government synthetic rubber plant operated by Goodrich in Kentucky. He succeeds **J. W. Frasche**, who has been named plant manager at another government synthetic plant to be operated by Goodrich in Texas.

Public Relations

The Lycoming (aircraft engine) Division of The Aviation Corp. in Williamsport, Pa., has a new way of making friends with its visitors and relieving any boredom in the reception room.

A receptionist provides each caller with a "Greetings" folder which gives such pertinent information as the names of all the plant personnel visitors are likely to be calling on, their position with the company, instructions about the company parking lot, information about public transportation back to town, pictures of Lycoming-powered planes, and so on.

It's personalized too; the receptionist writes the caller's name at the top of the cover page when he registers. Lycoming says it's winning a lot of thanks from visitors.

Sperry's Sales Reach New High; Profit Up

The Sperry Corp., producers of the automatic gyropilot for aircraft and many types of steering, fire-control, direction-finding, and gun turret control systems, earned \$7,944,961 last year, or \$3.94 a share.

This was revealed in the company's 1942 annual report, released April 9 by Thomas A. Morgan, president. Morgan said the corporation has applied for a large "V" credit to finance its mounting volume of war contracts and is currently negotiating the credit with a group of banks. He gave no indication as to the amount of the credit.

Post-war reserves amounting to \$2,167,000, or \$1.07 a share, were set up out of income in 1942, which compared with \$999,633, or 49 cents a share, the year before. The 1942 earnings reflect provision for payment to the government as a result of renegotiation of prices to the end of 1942, Morgan noted.

Sperry sales in 1942 set a new record at over \$250,000,000 before renegotiation of contracts, or 2½ times the 1941 figures, he added. Shipments last year equaled those of the previous nine years combined. Backlog of orders at the end of the year was nearly \$1,000,000,000, or double a year previous.

Morgan indicated peak production would not be reached until several new plants are fully equipped, and 1943 shipments are expected to be more than double 1942. The number of employees more than doubled during 1942 to over 50,000, he said.

Revised Fairchild Announced

A revised model of the Fairchild PT-19A, to be known as the PT-19B, is in production at Fairchild Aircraft, Hagerstown, Md. It incorporates navigation lights, instrument lights, 24-volt battery, engine-driven generator, and electrical interphone system. The new model is painted aluminum with the top portions of the cockpit and engine cowlings black to reduce glare. Gross weight is just over 2,500 lbs. Top speed is 125 mph with a cruising speed of 106. The ship is 27 feet, eight inches long and has a span of 36 feet.

Curtiss-Wright Forms

New Research Division

Curtiss-Wright Corp. announced April 1 the formation of a new unit to be known as the Development Division to be headed by Peter F. Rossmann, chief of development research in the corporation's Airplane Division Research Laboratory. A factory to accommodate research has been acquired in New Jersey.

The new division gives Curtiss-Wright four units. The other three are the Curtiss-Wright Airplane Division, Wright Aeronautical Corp., and Curtiss-Wright Propeller Division.

The new unit will provide a means of implementing collaboration on engineering problems relating to the other divisions and will anticipate the development of new products and new markets in the post-war period, said G. W. Vaughan, corporation president. He revealed the company plans a wide expansion of research and development in close cooperation with the armed services and with industry.

The engineering staff of the Development Division will include technicians and engineers who are expert in both aeronautical and non-aeronautical fields.

"The long and extensive experience of Curtiss-Wright Corp. in producing high quality units through the use of new design and manufacturing techniques and new materials provides this new division with an unequalled background for its development program," said Vaughan. "This will not only help us win the war but also will contribute to our industrial progress when the conflict is over."

Rossmann joined the Airplane Division of Curtiss-Wright in 1936 as production design engineer. He has been head of the production design department, assistant to the director of military engineering, technical assistant on the staff of the vice-president in charge of the Airplane Division, and chief of the developments research in the division's research laboratory.

He was formerly with the Packard Motor Car Corp.

Algoma Products Will

Make Template Dies

Algoma Products has been formed in Detroit, Mich., for the large-scale manufacture of template dies for the aircraft and similar industries, according to L. Hoster, general manager of the company. Hoster formerly was in charge of manufacturing for the Progressive Welder Co. Detroit.

The new company has taken over the former plant of Weltronic Corp., Detroit, and will absorb Weltronic's fixture division. Its most important product will be a line of blanking and piercing dies to be produced from templates of parts on a mass-production basis. Hoster estimates that new methods to be employed will save three-fourths of the time required to produce the dies, and will reduce the cost 65%.



Rossmann



Flying Cavalry



16mm. SOUND FILM — "The Construction of a Light Airplane" now available. For point of nearest distribution, write the producer: Supervisor, Audio-Visual Aids, Extension Services, Pennsylvania State College, State College, Penna.

"FLYING CAVALRY!" This is no idle dream. For the Piper L-4 plane has the qualifications to speed "flying cavalymen" on surprise attacks against the enemy . . . behind their own lines!

A squadron of these Piper "Grasshoppers" would play havoc with enemy communications, ammunition dumps and vital installations. Their remarkable maneuverability, their ability to land and take-off quickly from small areas and their unusual economy well adapt Piper L-4 planes for this and similar wartime uses.

Already, these stout little planes have proved their worth on the battlefronts of the world. And, when victory is won, a smart peacetime Piper Cub will carry you quickly and economically on vacation and business trips. Then, small airports and highway landing strips will dot the country . . . and light airplanes will dominate the sky, just as popular-priced automobiles dominate the road.

FREE BOOKLET ON HOW TO FLY. Send today for your copy of the easy-to-understand booklet "You, Too, Can Fly!" If you also want the full-color Piper catalog, enclose 10c in stamps or coin for postage-handling. Piper Aircraft Corporation, Dept. AA53, Lock Haven, Penna.

PIPER *Cub*

POINTS THE WAY TO WINGS FOR ALL AMERICANS

Background of National Council Officials

(Continued from page 16)

types of planes for the Navy, both designed by Grumman.

GLENN L. MARTIN

President, The Glenn L. Martin Co.

Martin began building planes as a boy and flew his own plane for the first time Aug. 1, 1909. He was a graduate of Kansas Wesleyan and held an honorary D.Sc. from Brown University, but his interests were definitely in the air and his first accomplishments included breaking several early flying records. He has been building planes for the U. S. Army since 1913.

Among manufacturers and aircraft executives many have worked with and for Martin. These include Donald Douglas, Larry Bell and J. H. Kindelberger. In addition to overseeing production of his craft at the Martin Maryland and Nebraska plants, Martin was serving as president of the East Coast Aircraft War Production Council when he was chosen to head the new national organization.

FREDERICK RIEBEL, JR.

President, Brewster Aeronautical Corp.

New in the aircraft executive ranks, Riebel moved to the Brewster presidency in March. He made his name in the Westinghouse Electric organization and has more recently been a top-ranking Navy consultant.

GUY W. VAUGHAN

President, Curtiss-Wright Corp.

As an automobile race driver of high speed experimental cars at the age of 18, Vaughan became a devotee of speed and engine performance. In 1917 he became Quality Manager of the Wright-Martin Co. and during World War I applied principles of standardization and mass production to turning out engines. He remained with Wright Aeronautical Corp. until 1935 when he became president of Curtiss-Wright Corp., oldest producer of engines, fighting planes and propellers.

Currently he directs the manufacture of Wright Cyclone engines for a wide array of combat and cargo planes.

J. CARLTON WARD, JR.

President, Fairchild Engine & Airplane Corp.

Began his business career as development engineer for International Paper Co. in 1914. Ward joined the Pratt & Whitney Aircraft Division of United Aircraft Corp. in 1935 and remained as vice president, director and general

manager until 1940. He then joined Fairchild Engine & Airplane Corp., of which he is now president. He directs its three divisions—Fairchild Aircraft, Ranger Engine, and Duramold manufacturing plastic plywood for airplane and other industry uses.

LA MOTTE T. COHU

Chairman & General Manager, Northrop Aircraft, Inc.

A Princeton graduate, Cohu served in the Navy in World War I, was on the 1920 U. S. Olympic wrestling team—but has been strictly business ever since. In 1929 he formed Air Investors and organized Interstate Air Lines, now part of Eastern Air Lines. Has served as a director of United Aviation Corp. (later became president); of American Airways; Roosevelt Field (also served on executive committee); North American Aviation; Transcontinental Transport and Transcontinental and Western Air, and of Eastern Air Transport.

He was one of the organizers of Northrop in 1939, one of the first projects of which was the Flying Wing which is still wrapped in military secrecy, although successfully test-flown in 1940.

DOUGLAS W. DOUGLAS

President, Douglas Aircraft Co.

Inspired by witnessing a flight of the Wright Brothers' first flying machine in 1909, Douglas resigned from the U. S. Naval Academy to study aeronautical engineering at M.I.T.

With Commander J. C. Hunsacker he developed the first wind tunnel and became chief engineer for Glenn L. Martin. He launched his own business in Southern California in 1920, won the 1936 Collier award for outstanding advances in aviation, and was awarded the 1940 Guggenheim gold medal for outstanding contributions in his field. The first design of Douglas Aircraft Co. was the "Cloudster," three-place biplane and the first plane to carry its own weight.

COURTLAND S. GROSS

President, Vega Aircraft Corp.

At the age of 25 Gross joined the Viking Flying Boat Co. in 1929 and was president of its holding company when Viking undertook the Lockheed agency in New York in 1932. Two years later this agency became a Lockheed branch. As its manager, Gross negotiated pioneer contracts with Army, Navy,

British and transport lines. He became president of Vega in 1940.

ROBERT E. GROSS

President, Lockheed Aircraft Corp.

Harvard-graduate Gross began building seaplanes in 1922 when he became associated with Stearman Aircraft. He organized the Viking Flying Boat Co. in New Haven to build four-place flying boats. Helped start the Varney Speed Lines in California. In 1932 he headed the group that reorganized Lockheed into a major manufacturer of transport planes, after 1929 market crash had halted Detroit Aircraft Corp.'s plans to convert it into a "General Motors of the Air." Gross is currently president of Aircraft War Production Council, Inc.

PHILIP G. JOHNSON

President, Boeing Aircraft Co.

Started his aviation career as a draftsman at Boeing in 1917. He was production manager during the first World War when the company was producing planes for the Navy. Was promoted to vice president and general manager in 1921, president in 1926. When Boeing entered the air transport field in 1927, Johnson was in charge of the project.

He became president of United Aircraft and Transport Corp. In 1937 he was called upon to direct the planning and operation of a national airline across Canada. Under his guidance, as vice president in charge of operations, Trans-Canada Air Lines was developed. When this task was completed, he returned to his post as head of Boeing.

J. H. KINDELBARGER

President, North American Aviation, Inc.

Needing more technical training, Kindelberger set a stern pace for himself back in 1916 when he studied 15 hours daily for six months and passed entrance examinations for Carnegie Tech. He previously had been working for National Tube Co.

He was in the Air Corps during World War I and immediately after the armistice joined Glenn L. Martin Co. where he advanced to the post of chief draftsman and assistant chief engineer. He became chief engineer of Douglas in 1924 and vice president in charge of Douglas engineering in 1929. He resigned in 1934 to become head of General Aviation.

T. CLAUDE RYAN

President, Ryan Aeronautical Co.

Rejected when he tried to get into the Army as an aviation cadet in 1917 because he was too young, Ryan entered a civilian air school at Venice, Cal., studied engineering at Oregon State U. and finally got into the Army as a flying cadet in 1919. He resigned from the Army in 1922 to join an auto company.

Upon decision to go into aviation business, he went to San Diego, bought a wartime Jenny from the Army, and set up shop. In 1935 he began operating an airline with cabin biplanes between San Diego and Los Angeles.

HARRY WOODHEAD

President, Consolidated Vultee Aircraft Corp.

Born in Bradford, England, in 1889, a graduate in mechanical engineering of Bradford Technical college, Woodhead came to the U. S. in 1909 to become superintendent of the Cleveland Metal Products Co. He served as executive with several steel companies, including Truscon.

He entered aviation in 1940 as president of Aviation Manufacturing Corp., and four months later became chairman of the board of Vultee, where he installed the first mechanized assembly line for airplane production. In January, 1942, he became president of Consolidated and in November, 1942, president of Vultee, continuing as head of both with their merger early this year.

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Leading Manufacturers of Fabric and Tapes for the Aircraft Industry.

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New Electric Portable Sander



**FASTER!
SMOOTHER!
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SWIFT AND SMOOTH!

Get the job done quicker—and better with the new "Sterling 1000"! Powerful... rapid cutting—yet, because of skillfully engineered counter-balanced mechanism it operates *without a trace of vibration!* So smoothly does the "Sterling 1000" handle—that women operators prefer to work with this new sander. Elimination of operator's jingle-jangle nerves alone means higher quality work! And this sander is *tough*—sturdily built to serve you dependably... even under heavy production pressure.

DESIGNED ON NEW SANDING ACTION PRINCIPLE! Orbital, circular, thousands of abrasive grains cut furrows which cross and recross each other. With this action, the "Sterling 1000" cuts faster—produces the smoothest surface you've ever known on wood, metal, plastic or composition. Ideal for many rubbing and polishing operations.

Write today for your copy of the New "Sterling 1000" folder, which describes its 21 important features in every detail.

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—MANUFACTURING—

Aviation Corp. Nets

\$1,103,218 1st Quarter

The Aviation Corporation announced Apr. 8 a consolidated net income of \$1,103,218 for the quarter ended Feb. 28 after deduction of all charges and federal taxes. The earnings, subject to possible change from contract renegotiation, are equivalent to 19 cents per share of capital stock, compared with \$1,002,844, or 17 cents per share, for the first quarter of the 1942 fiscal year.

In reporting the earnings, Victor Emanuel, president, announced the declaration of a dividend on the capital stock of 10 cents per share, payable April 30 to stockholders of record April 19. Dividends paid with respect to the 1942 fiscal year amounted to 10 cents per share in April and 15 cents per share in December.

Earnings for the first quarter of the 1943 fiscal year are after provision for federal taxes of \$3,200,000, equivalent to 55 cents per share of capital stock. The tax provision gives effect to a post-war tax refund of \$320,000. The earnings reflect a charge applicable to the first quarter of \$325,000 for post-war readjustment reserve.

The consolidated earnings do not include The Aviation Corporation's equity in the undistributed earnings of subsidiaries not consolidated or companies in which it has large investments.

On the Labor Front

BELL AIRCRAFT CORP., Buffalo, N. Y.

inaugurated "victory shift" giving three full days work weekly to men and women formerly unable to do plant work because of business or home duties. Starting pay for shift is same as regular employees, and "victory shifters" may choose any shift. At Niagara Falls, all employees in manufacturing departments work nine hours a day, six days a week, instead of former 48-hour stagger-shift. Company says this promotes "team work."

BENDIX AVIATION CORP.

UAW-CIO wins plant protection for plant at Owosso, Mich. The Eclipse Pioneer Division in New Jersey has petitioned NLRB to determine collective bargaining unit. For five years company has been bargaining with Aircraft Workers Union of New Jersey, but UAW-CIO claims to represent majority of workers.

BOEING AIRCRAFT CO., Seattle, Wash.

Employees who have been continuously employed for one full year by Nov. 30 will be eligible for vacation with pay, or extra pay in lieu of vacation. Company has lowered age limits of employment by one year in hope of attracting 3,000 new workers. Boys 18 and girls 17 may now work on day shift.

CORNELL-DUBILIER CORP., South Plainfield, N. J.

NWLB unanimously approved 4c per hour compensation for period of May 1 to Oct. 1, 1942 for 1,350 employees of Condenser Corp. Division.

CURTISS-WRIGHT CORP.

Asked NWLB to institute a six-day work week at its propeller division plants at Caldwell and Clifton, N. J., contending that the present seven-day, 56-hour week is responsible for considerable absenteeism and is not aiding production.

EICOR, INC., Chicago, Ill.

LAM-AFL was certified for production, tool, die, maintenance, and shop clerical workers.

PRECISION CASTINGS Co., Inc.

NLRB ordered company to cease discouraging membership in National Association of Die Casting Workers-AFL. Board also ordered complaint dismissed which alleged company discriminated against 11 employees.

SPERRY GYROSCOPE CO., INC., Brooklyn, N. Y.

An employment office will be opened to employ New York Negroes. Company expects to triple Negro personnel, now 400. Two plants lost their Army-Navy "E" because of unauthorized stoppages of work Apr. 1.

Your Atlanta Hotel—

THE ANSLEY

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of Southern Friendliness

OTHER DINKLER HOTELS

Tutwiler BIRMINGHAM, ALA.
Jefferson Davis MONTGOMERY, ALA.
St. Charles NEW ORLEANS, LA.
Andrew Jackson NASHVILLE, TENN.
O. Henry GREENSBORO, N. C.
Savannah SAVANNAH, GA.



In this, as in all other Dinkler Hotels, the finest in accommodations and the highest efficiency in service is supplemented by a warm cordiality and an air of sincere friendliness.

L. L. TUCKER, Jr., Manager

Noorduyn Aviation Ltd.

Reports \$38,234 Net

Noorduyn Aviation, Ltd., Montreal, reported a net profit of \$38,234.24 for 1942, not including the refundable portion of the excess profits tax, amounting to \$64,000, it was revealed in the company's annual report, released April 14. The available profit amounted to 41c per share.

In the absence of a ruling by the Board of Referees determining the company's standard profit before excess profits tax, the directors made provision for what, in their opinion, constitutes the maximum tax for which the company might be liable. Further, they set up a reserve of \$1,000,000 against the possibility of any adjustment of profits arising from the review or renegotiation of contracts, and other contingencies.

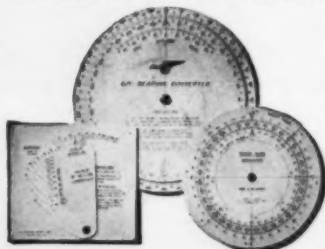
W. L. Bayer, president, reported that production during 1942 was 200% more than in 1941. This included complete aircraft, spare parts, accessory equipment, and aircraft repair work. Floor space was increased 28%, he said. Bayer took "great satisfaction" in the acceptance of the Noorduyn Norseman aircraft by the United States Army Air Forces as a utility cargo plane. He revealed that production of Harvard advance trainers, under license from North American Aviation, Inc., exceeded that for 1941 by 339% and that 75% of the entire year's output was produced in the second half of the year.

CURTISS-WRIGHT Corp., New York, N. Y., announces that its annual report has been delayed by renegotiation of contracts. The annual meeting has been postponed until the report is ready.

BENDIX AVIATION Corp., Bendix, N. J., to provide additional facilities at a plant in New Jersey costing approximately \$530,000, resulting in overall commitment of about \$58,000,000.

Headquarters for Computers

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RADIUS OF ACTION—Determines the time and distance from a fixed base.

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The AT-7 Beechcraft two-engine Navigational Trainer, shown below, serves the Army and Navy by providing a means of instructing pilots and navigators in the solution of the problems of long-distance flights. These airplanes are equipped with all of the devices used for modern celestial navigation, as well as for radio and dead-reckoning navigation, and provide accommodations for the training of three navigators simultaneously.

The AT-7 Beechcrafts combine high cruising speed, long range, and excellent flight and landing characteristics. They thus permit long flights, by day and by night, to distant points without the imposition of any abnormal burden on the skill of their pilots.

The use of the AT-7's as specialized Navigation Trainers is only one of the many examples of how the Army and Navy are providing their future combat pilots and navigators with the finest training in the entire world.



Beech Aircraft

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Financial Briefs

WESTINGHOUSE ELECTRIC AND MANUFACTURING Co., East Pittsburgh, Pa., discloses it has arranged, through a group of about 140 banks, for a \$200,000,000 credit. Chase National of New York will act as clearing agent for the participating group. Interest rate on the portion of credit used will be 2½% a year, on the unused portions, one quarter of one per cent a year.

SQUARE D Co., Detroit, Mich., has reported net profit for 1942 of \$2,769,195, equal after dividend requirements on preferred stock to \$6.36 each on 421,360 shares of common. In 1941, profit was \$3,104,343, or \$7.13. Provision for Federal income and excess profits taxes in 1942 was \$9,825,000, against \$7,545,000 in 1941.

WESTERN ELECTRIC Co., New York, N. Y., reports consolidated net income for 1942 of \$7,548,394, equivalent to \$1.26 a share on 6,000,000 outstanding. This compares with net income in 1941 of \$18,427,536, or \$3.07. Net sales in 1942 were \$573,956,447, against \$600,620,946 in 1941. Federal income taxes in 1942 amounted to \$10,063,760, contrasted with \$12,590,295 in 1941, and excess profits taxes were \$57,952,225, against \$38,991,842.

STUDEBAKER Corp., South Bend, Ind., discloses consolidated net profit of \$2,048,278 in 1942 on sales of \$221,420,582, equivalent to \$1.26 each on 2,223,178 shares of common, compared with net profit in 1941 of \$2,486,397 on sales of \$115,700,333, equal to \$1.12 each on 2,223,178 shares outstanding. Provision for Federal income and excess profits taxes in 1942, after deductions, was \$5,290,000, contrasted with \$4,475,000 in 1941. Consolidated balance sheet as of Dec. 31, 1942 shows total assets of \$191,479,782, and current assets of \$58,137,812, including cash, \$17,520,379.08 and accounts receivable, \$23,163,592. Total current liabilities are \$37,657,165.54. Earned surplus is \$844,124.06.

DOUGLAS AIRCRAFT CO., Inc., Santa Monica, Cal., for further facilities in California, costing about \$90,000, resulting in a commitment of about \$725,000.

SUNSTRAND MACHINE TOOL CO., Rockford, Ill., for further plant facilities in Illinois, to cost about \$200,000, making final commitment about \$430,000.

WARNER AIRCRAFT Corp., Detroit, Mich., reports net income for 1942 of \$111,968, against \$373,553 income and excess profits taxes. This is equal to 22c each on 499,952 shares. Net sales in 1941 was \$280,824, or 56c a share, after \$473,600 taxes. Net sales were \$3,073,005, compared with \$2,725,915 in 1941.

CONTINENTAL AIR LINES, Inc., Denver, Colo., announces a net income of \$152,437 for the six months' period ending Dec. 31, 1942, after deduction of income and other taxes. This amounts to 60.79c for each share of outstanding common stock.

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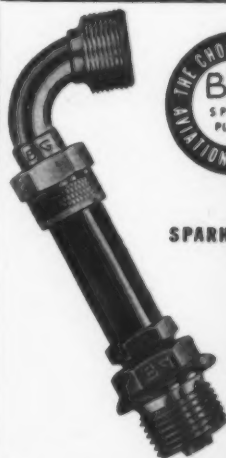
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